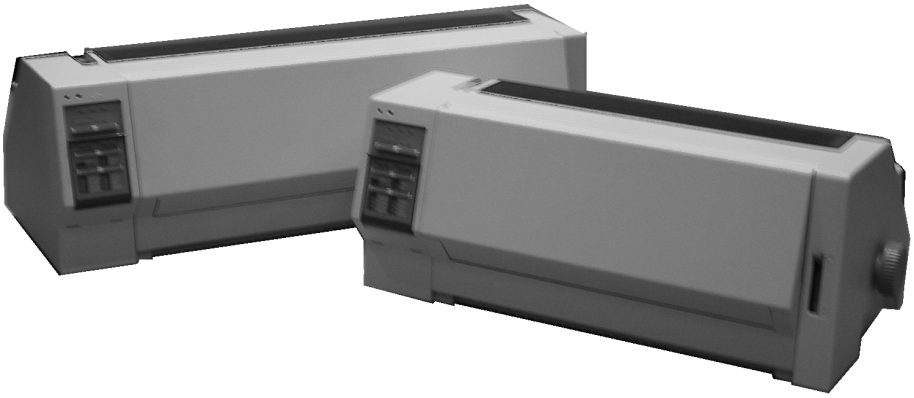
Compuprint

3031 – 3031N
3036 – 3036N

User Manual



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Electronic Emissions and Safety Notices

Federal Communications Commission (FCC) Statement and Electrical Notices (for 3031/31N, 3036/36N)

Note:This machine have been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
- Consult your authorized dealer or service representative for additional suggestions.

Compuprint is not responsible for any radio or television interference caused by using other than recommended cables or by unauthorized changes or modifications to this equipment.
Unauthorized changes or modifications could void the user's authority to operate the equipment.

Note: To comply with FCC regulations on electromagnetic interference for a Class B computing device, the printer cable must be shielded and properly grounded.

To assure compliance with FCC regulations for a Class B computing device, use a properly shielded and grounded printer cable. Use of substitute cable not properly shielded and grounded may result in violation of FCC regulations.

European Community (EC) Electromagnetic Compatibility Directive (f3031/31N, 3036/36N)

This device fulfills the Euean standard requirements by complying with the Directive of the Commission dated May 3,1989(89/336/EEC) relating to electro-magnetic compatibility and the Directive dated February 19,1973(73/23/EEC) relating to low-voltage electrical equipment.
Conformity with the above mentioned Directives is indicated by the CE symbol attached to device.

Germany Statement

A declaration of conformity with the requirements of the Directive has been signed by the Director of Manufacturing and Technical Support.
This product satisfies the Class B limits of EN 55022.

Introduction

Thank you very much for purchasing the 3031/31N and 3036/36N series printer. This is the instruction manual for operating and handling the 3031/31N and 3036/36N series printer. Please read it thoroughly before using this machine.
Note: In this manual, the 3031/31N and 3036/36N series printer will be referred to as "the printer" or "this printer".

Manual Overview

Chapter 1: Installing the Printer ... describes the installation procedure from installing attachments, ink-ribbon cartridge, to connecting the printer to the system unit.
Chapter 2: Operation Panel ... describes the basic functions of the Operation Panel.
Chapter 3: Paper Setting ... describes the procedure to set paper in the printer and the respective adjustments.
Chapter 4: Initial Setting ... describes the procedures to set the initial values, make the ruled line adjustments, etc.
Chapter 5: Troubleshooting ... summarizes printer errors and their counter remedies.
Chapter 6: Consumables, Hardware Options, and Maintenance ... describes the ink-ribbon cartridge, printer cable, Auto Sheet Feeder (ASF), Option Tractor, Serial Interface Option and daily maintenance.
Chapter 7: About Paper ... describes the types of paper that can be used, the printable range, etc.
Appendix A: Specifications ... describes the mechanical and electrical specifications of the printer.
Appendix B: Diagnosis ... describes the built-in self-test functions.
Appendix C: Printer Commands ... describes the printer control commands.

Related Manuals

3031/31N, 3036/36N Maintenance Manual

Consumables / Hardware Options

The following parts are specified as consumables for the printer:

Ink-ribbon Cartridge

The following products are provided as options:

Printer Cable, 25-36 pin type (2.4 m)
Printer Cable, 25-36 pin type (5.0 m)
Serial Interface option (RS-232C)

The following products are provided as options for 3036 printer model:

Auto Sheet Feeder (ASF)
Optional Tractor

The following products are provided as options for 3036N :

Auto Sheet Feeder (ASF)
Optional Tractor

For further details, see page 6-1 in Chapter 6: Consumables, Hardware Options, and Maintenance.

Operating the printer safely ....

In this manual, warning indications are given in the correct and safe operation of the printer. Please keep this manual and refer to it whenever necessary.

Concerning warning indications ...

The following indications are used in this manual to prevent you and others from being injured or property from being damaged. The meaning of each indication is also stated below:

⚠ DANGER	This means there is a risk of serious injury or death if the machine is used improperly.
⚠ CAUTION	This means there is a possibility that a person may be injured or property may be damaged if the machine is used improperly.

Concerning DANGER/CAUTION Labels ...

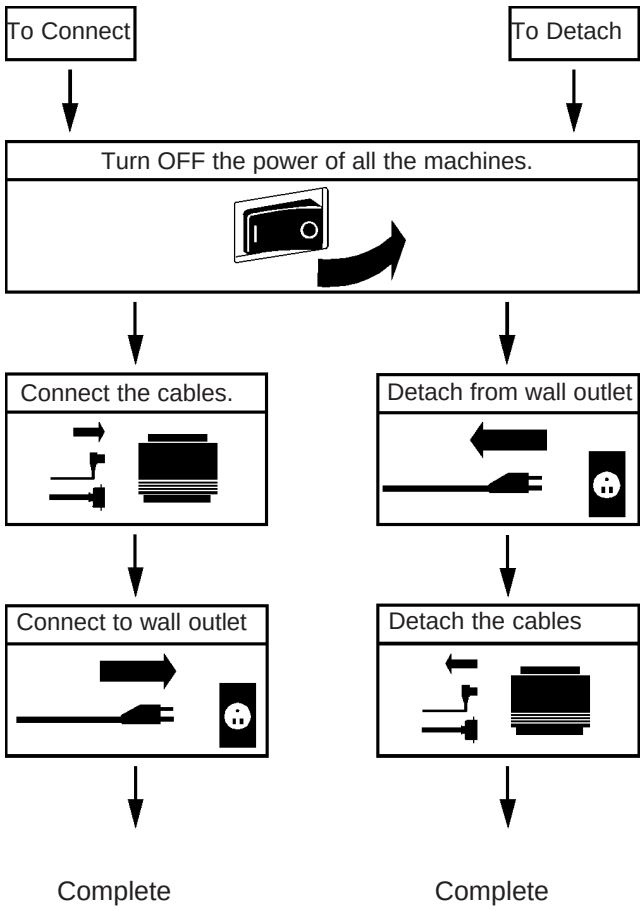
Any label with black characters in a yellow background applied outside or inside the printer is a danger or caution label. Please be certain to follow the specific instructions.

When there are instructions on a DANGER/CAUTION label besides those explained in this manual (applied on the product, for example), please be certain to follow them.

On the print head, the ⚠ "WARNING, Hot surface, Do not touch." label is applied. As the print head will be extremely hot after printing, please use caution.

DANGER

The electric current from power cords, telephone lines, and communication cables may be harmful. For installing, moving, or connecting the printer, please connect or detach the cables in the following sequences.

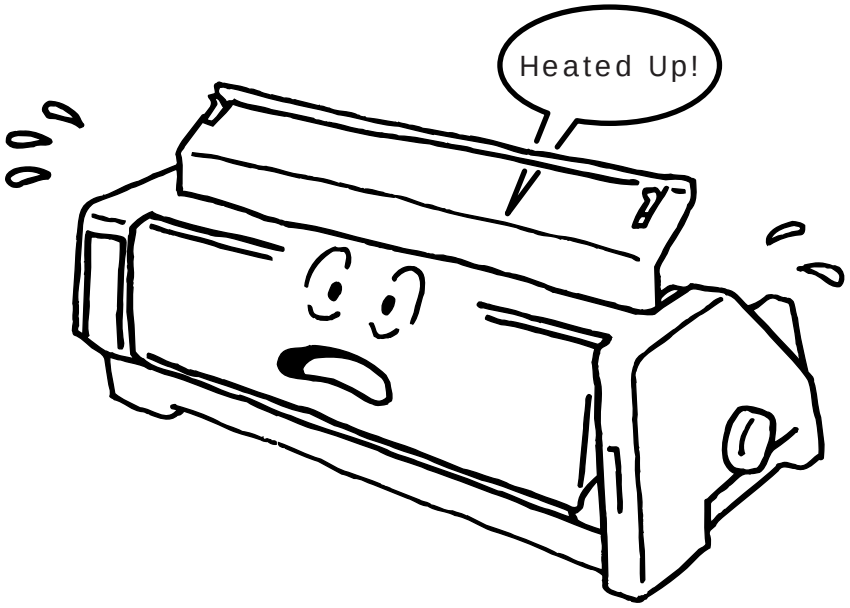


⚠ DANGER

- Never attempt to maintain or repair any parts other than those specified in this manual. Fire or electric shock may result. If the printer performance is diminished because cleaning or repair is required, please turn OFF the power switch, unplug the power cord, and contact the store where the printer was pur chased or a local service company.
- Do not lubricate or disassemble the printer. Fire or electric shock may result.
- Do not modify the printer. Fire or electric shock may result.
- Do not use the printer with any other voltage than that specified on the product. Do not share one outlet with too many electric appliances. Fire or electric shock may result.
- Do not use any other power cord than that specified for this printer. Do not use a power cord attached to any other electric appliance. Fire or electric shock hazard.
- Do not plug/unplug the power cord in/from the outlet with a wet hand. It may cause an electric shock may result.
- Do not modify or let the power cord become damaged Do not place any heavy objects on it. The power cord may get damaged and fire or electric shock may result.
- If a telephone cable, communication cable, or TV antenna connection is included in the system unit installation, do not touch any of those cables during thunder and lightning storms.
- If the printer continues to be used in an abnormal condition, (when it is overheated, smoke is coming out, unusual smell, etc.), fire or electric shock may result. In any of these situations, immediately turn OFF the power switch, unplug the power cord, and contact the store where the product was purchased or a local service company.
- If any foreign objects (metal parts, water, other liquid, etc.) get inside the printer, immediately turn OFF the power switch, unplug the power cord, and contact the store where the product was purchased or a local service company. If the printer is used in this condition, fire or electric shock mayresult.
- Should the printer be dropped or damaged, immediately turn OFF the power switch, unplug the power cord, and contact the store where the product was purchased or a local service company. If the printer continues to be used in this condition, fire or electric shock hazard.
- Do not use any cables or connectors other than those specified for connection with the optional equipment.

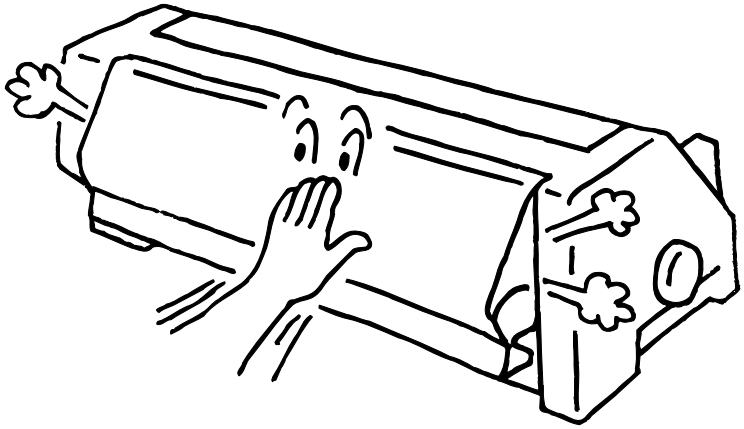
⚠ CAUTION

- To unplug the power cord, always hold it by the plug to pull it. If you pull the cord, it may get damaged and fire or electric shock may result.
- Do not expose the printer to high humidity or dust. Fire or electric shock may result.
- Do not block the printer vent. If it is blocked or closed, the inside will be come hot and a fire may result.
- The Print Head inside the printer will be hot immediately after printing. Please be careful.
  When opening or closing the Access Cover, installing the Ink-Ribbon Car tridge, removing jammed paper, etc., please be especially careful not to touch the Print Head.
  Before putting the cover on the printer, first turn OFF the power switch and wait until the printer cools down.

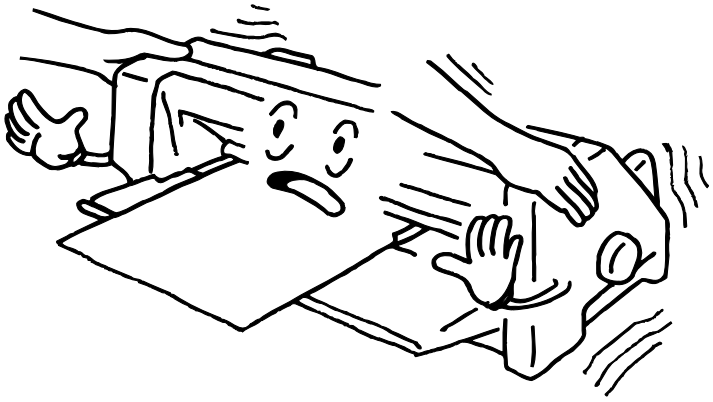


⚠ CAUTION

- When opening or closing the Access Cover, Front Cover, Cut Sheet Guide, or Paper Stand, proceed gently and carefully.



- When the printer is not to be used for a long time, unplug the power cord.
- Ensure the printer is not subject to shocks or vibrations while it is printing.



Features of the Printer

ITEM	FUNCTION	FEATURE
Paper Size	3031, 3036 Cut Sheet paper 76mm - 420mm Fanfold Paper 76mm - 406mm 3031N, 3036N Cut Sheet paper 76mm - 297mm Fanfold Paper 76mm - 254mm	Various size of paper can be used. 3031, 3036 from post cards to A3-size 3031N, 3036N from post cards to A4-size
Print Speed	Fast Draft(10cpi) 3036/36N: 336cps 3031/31N: 360cps Draft (10cpi) 3036/36N: 250cps 3031/31N: 270cps LQ (10cpi) 3036/36N: 75cps NLQ 3031/31N: 68cps	Various print speeds
Character Pitch	*1 10,12,15,17.1,20,24cpi, PS	Corresponds to various print pitches
Font Style	Fast Draft, Draft, LetterQuality (Gothic, Couirer, Prestage, Presentor, Orator, Script)	Corresponds to various print modifications.
Print Style	Double-size(height, width), Quadruple-size,Bold, Subscript, Superscript,Ruled Line,Vertical-Writing Reducation,Underline,Double-Strike	These styles can be set by the print commands.
Operation Panel	Start/Stop, Line Feed, Form Feed, Font, Pitch, Micro-Up, Micro-Down, User1/User2, 1st TR/2nd TR, Alt function	Simple on finger operation
Paper Park	Holds Continuous Paper prior to loading and after ejection.	Cut Sheet Paper can be use without detaching the Continuous Paper already set.
Front Loading	Loads Cut Sheet Paper.	Cut Sheet Paper can be inserted conveniently from the front.
Tear Off	Tears along the Tear Bar line	Can easily tear Continuous Paper along the Tear Bar line.
Tractor	Double Tractor (Option)	By attaching the Option Tractor, two types of Continuous Paper can be set.
Multi-Sheet Form	for 3036/36N: Original + 3 copies for 3031/31N: Original + 5 copies	Forms of more than 1 original + 3/5 copies can be used (depending on the type of paper)by changing the paper thickness adjustment.

*1 only for 3036/36N

ITEM	FUNCTION	FEATURE
Emulation	IBM mode 3036/36N: IBM Proprinter X24, XL24 3031/31N: IBM Proprinter III, IIIXL ESC/P mode 3036/36N: EPSON LQ850, LQ1050 3031/31N: EPSON FX850, FX1170	Emulation can be selected by the set up mode.
Interface	P/S2 Parallel Interface, IEEE1284 Bi-direction Parallel I/F RS-232C Serial Interafce (Option)	Can be connected to various system units.

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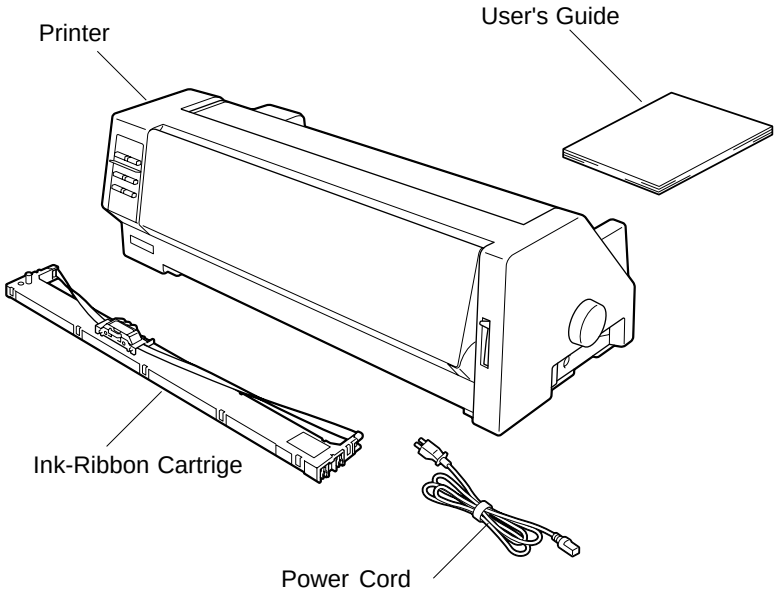
Chapter 1: Installing the Printer

1. Checking the Accessories

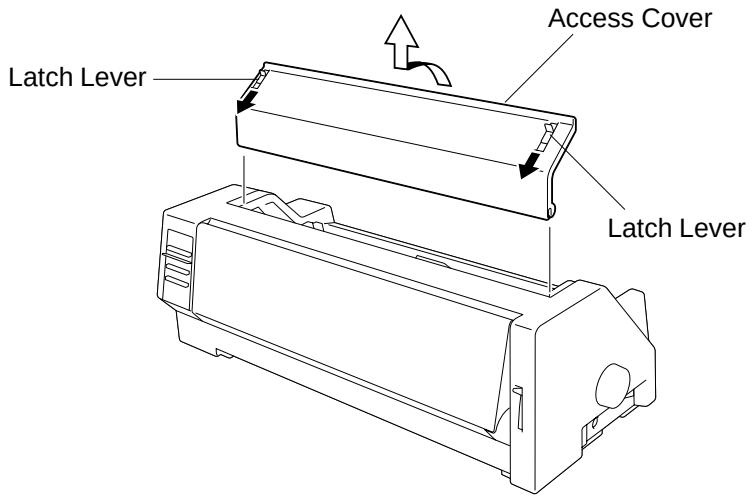
Please open the printer package and check that all the following items are included. If any item is missing or damaged, please contact the store where the product was purchased.
The carton and the packing materials will be necessary for moving or transporting the printer. Please store them in a safe place.



NOTE: Printer Cable is not included in the package and is to be purchased separately. Please see Chapter 6 - Section 2: Hardware Options, page 6-2.

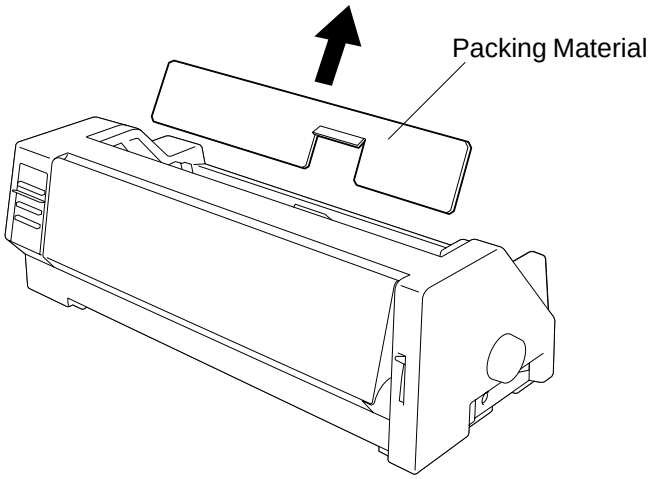
2. Unpacking the Printer

1) Remove the packing tape on the printer.
2) Pull the Latch Lever, located near the right and left ends of the Access Cover, to the front, and remove the entire Access Cover.



3) Remove the Packing Material inside the printer.

NOTE: Those packing materials will be necessary for moving or transporting the printer. Please store them in a safe place.



3. Installation Advice

⚠ CAUTION	Do not place the printer on an unstable surface. It may fall and injure someone.

(1) Place the printer on a table surface as flat, level, and stable as possible, where no vibrations may occur. On both sides of the printer, keep a free space of at least 5 cm.

(2) Protect the printer from exessively high temperatures, keep it away from heaters, radiators, direct sunlight, etc.

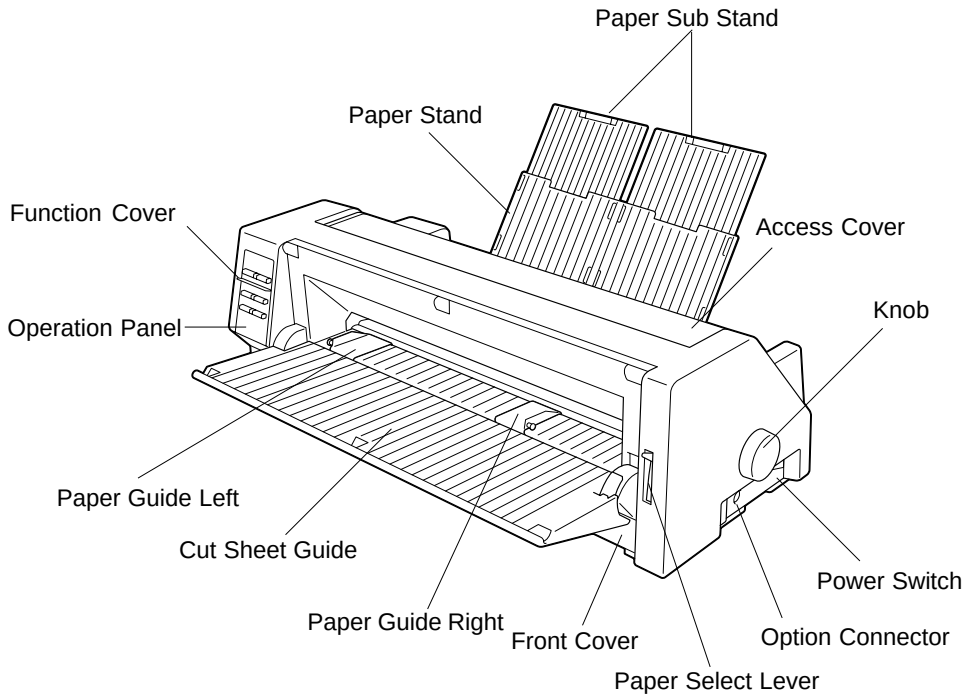
(3) Do not use the printer in environments with high humidity or with ecessive dust containing oil and iron particles.

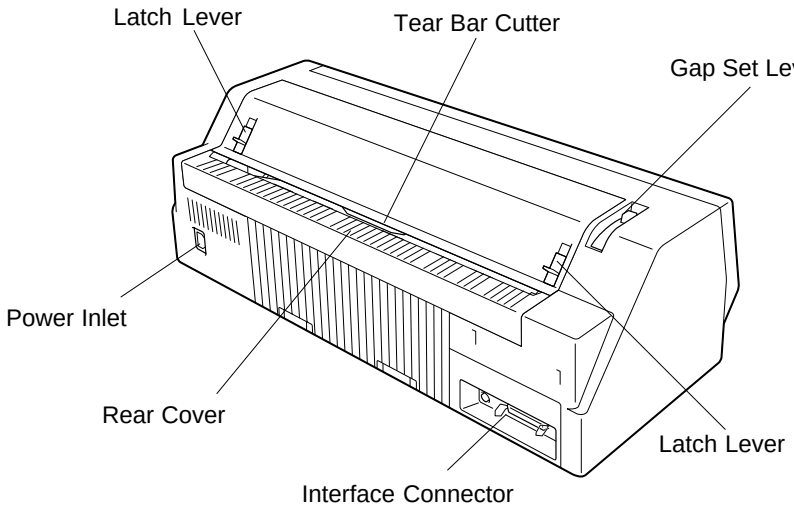
(4) Protect the printer from shocks, vibrations, strong magnetic fields, or corrosive gases.

(5) Make sure that the mains power voltage matches the power voltage indicated on the rating place. Do not use the printer, if the values do not match.

4. Printer Parts, Locations, and Functions

The following figures show the name of each printer part, and the table on the following page shows the functions of each part.

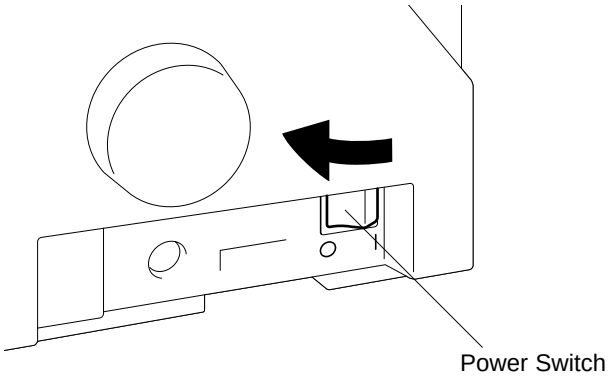




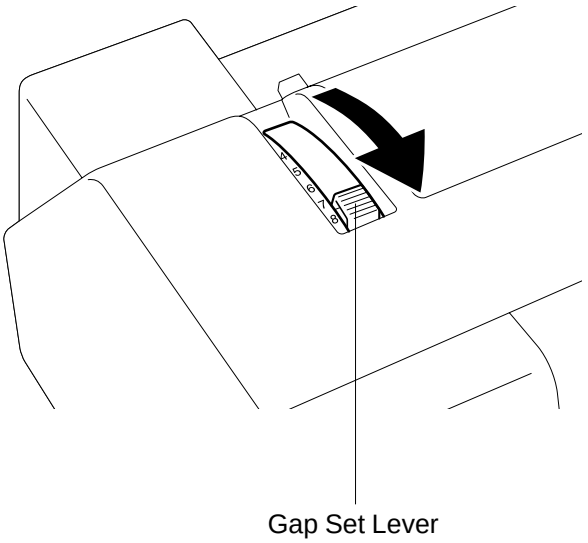
NAME	FUNCTIONS
Operation Panel	It indicates the printer status, and is used to change various settings.
Function Cover	Can be opened to change key functions and status of lamp indicators.
Paper Stand	It is used as a paper support for cut sheet paper already printed when the option "paper exit to front" is set to OFF in the Initial Setting.
Paper Sub Stands	They are used for extending of the Paper Stand.
Access Cover	When the Ink-ribbon Cartridge is to be replaced or paper jams are to be removed, this cover is detached to allow access to the related parts. It also serves to protect operators from the mechanical movements of the printer.
Knob	It is used to manually feed paper forward or backward.
Power Switch	It is used to turn ON or OFF the power of the printer.
Option Connectors	They are used to connect an Auto Sheet Feeder (ASF) or the Optional Tractor.
Paper Select Lever	It is used to select the appropriate type of paper to be used in the printer: - Cut Sheet Paper (upper position) - Continuous Paper (lower position)
Front Cover	It is opened when Continuous Paper is to be set. This cover is detached when an Auto Sheet Feeder (ASF) or the Option Tractor is to be attached.
Paper Guide Right	By aligning the right edge of the Cut Sheet Paper to this guide, an uneven feed can be prevented.
Cut Sheet Guide	It is opened for inserting Cut Sheet Paper and is used as a paper support. It is also used as a support for post-print Cut Sheet Paper when the option "paper exit to front" is set to ON in the Initial Setting.
Paper Guide Left	It is used to adjust the left margin of the Cut Sheet Paper.
Cover Release Lever	By pulling this lever to the front, the latch is released and the Access Cover can be opened.
Tear Bar Cutter	Continuous Paper will be cut at this position. By pressing the Tear Off Key after printing, paper feeds up to this position.
Gap Set Lever	It is used to adjust the paper-pinching strength of the printer in accordance with the thickness of the paper to be used. For the adjustment ranges, see Chapter 3, Section 5: Paper thickness Adjust, page 3-19.
Interface Connector	It is used to connect the cable to the system unit.
Power Inlet	It connects to the power cord.

5. Installing the Ink-ribbon Cartridge

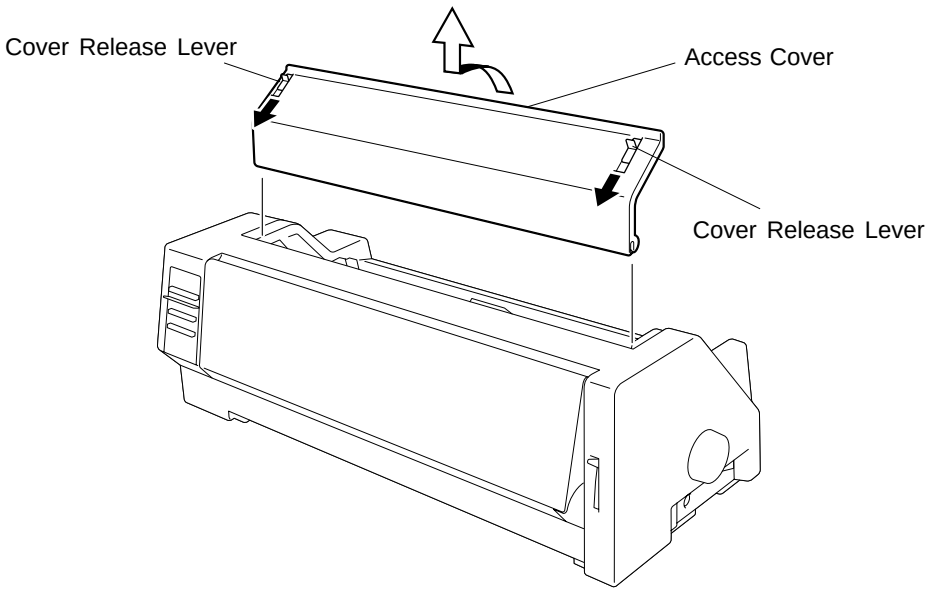
1) Turn the printer Power Switch to the OFF position (marked with a "O" symbol).



2) Set the Paper Thickness Adjustment Lever to position "8" .

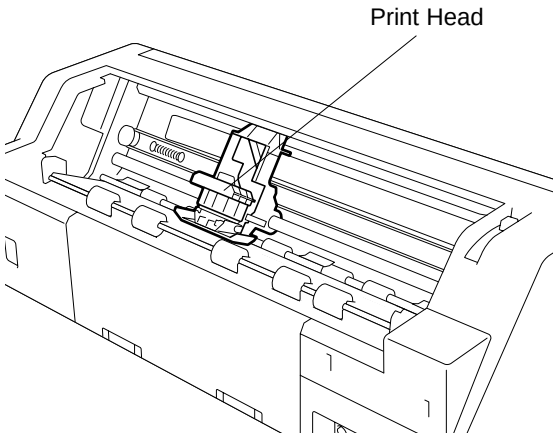


3) Move the Cover Release Levers on both sides of the printer cover towards the front of the printer and remove the cover.

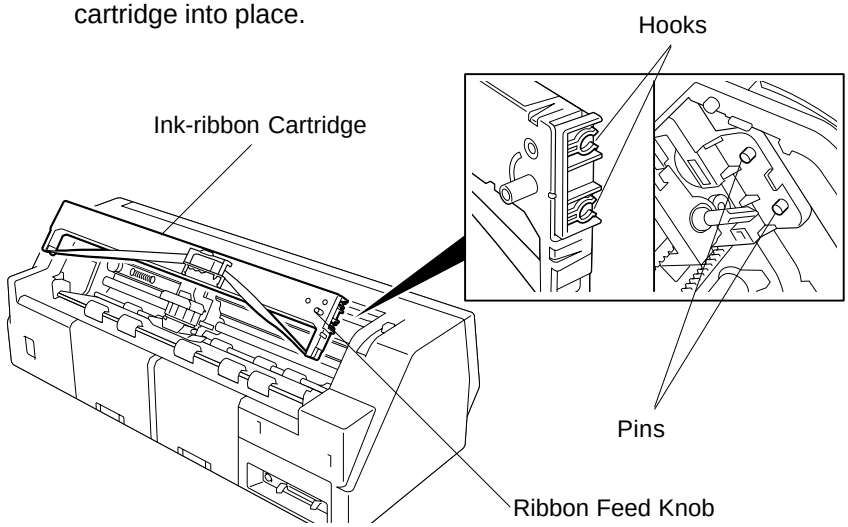


4) Move the Print Head to the center of the printer carriage.

⚠ CAUTION	The Print Head may be hot. Please be careful not to touch the metal part of the Print Head.

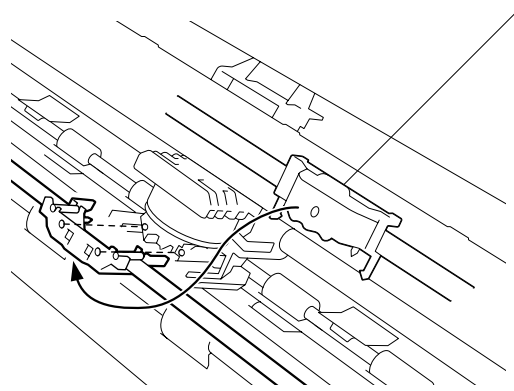


5) Match the two hooks on the right-hand side of the Ink-ribbon Cartridge to the corresponding pins on the printer and push the cartridge until it clicks into place.
If there is resistance, turn the Ribbon Feed Knob while pushing the cartridge into place.

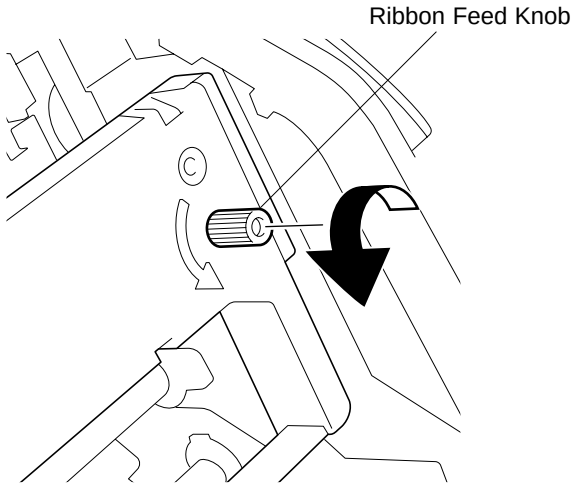


6) Detach the Ribbon Guide from the Ink-ribbon Cartridge, being careful to avoid damaging it, since it protects the ribbon.

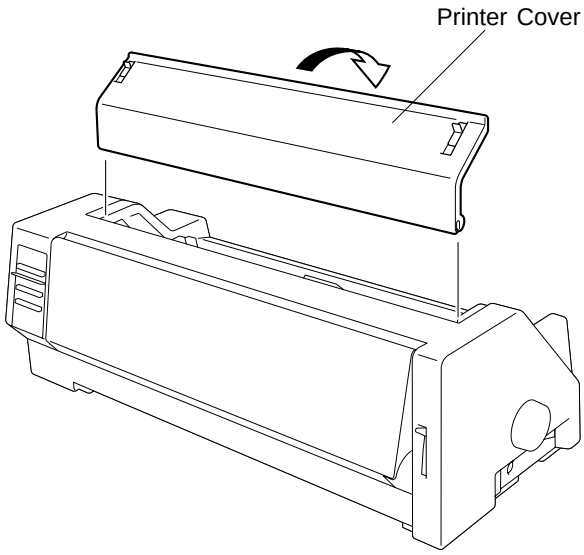
7) Insert the Ribbon Guide between the Print Head and the Platen and push it down until it clicks into place. Be careful not to fold the ribbon and avoid damaging the shield.



8) Turn the Ribbon Feed Knob in the direction indicated by the arrow to remove any slack in the ribbon.



9) When the Ink-ribbon Cartridge is installed, refit the printer cover.

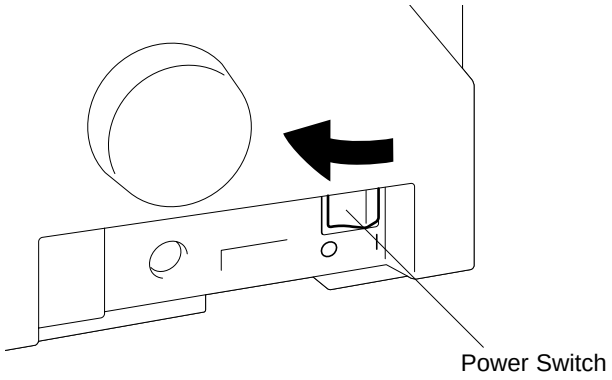


10) Adjust the Gap Set Lever according to the thickness of the paper to be used. Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

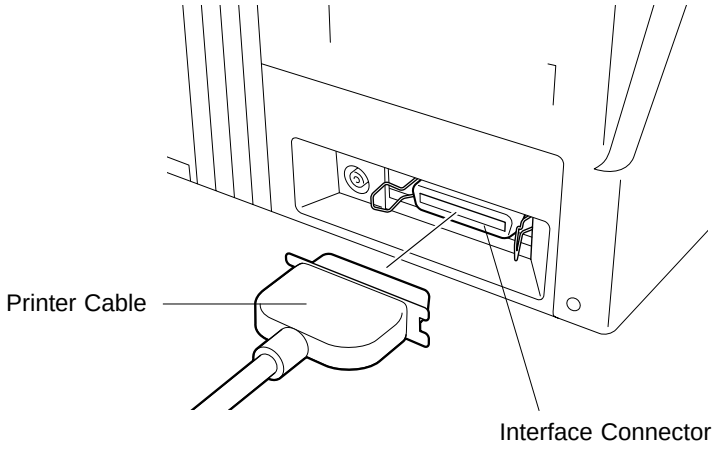
6. Connecting the Printer Cable

NOTE: Printer Cable is not a standard feature of the printer.
It must be purchased separately if you do not have one.
Refer to Chapter 6, Section 2: Hardware Options, page 6-2.

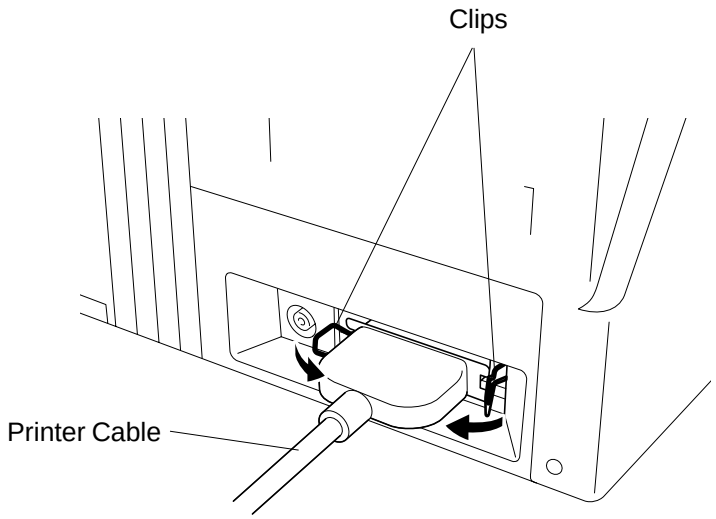
1) Turn the printer Power Switch OFF (marked with a "O" symbol).



2) Connect the Printer Cable connector to the Interface Connector.



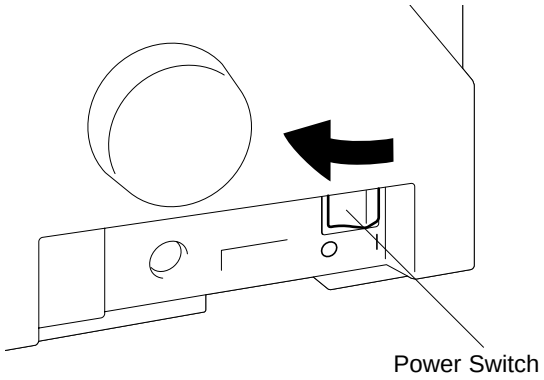
3) Fasten the Printer Cable connector by means of the two clips.



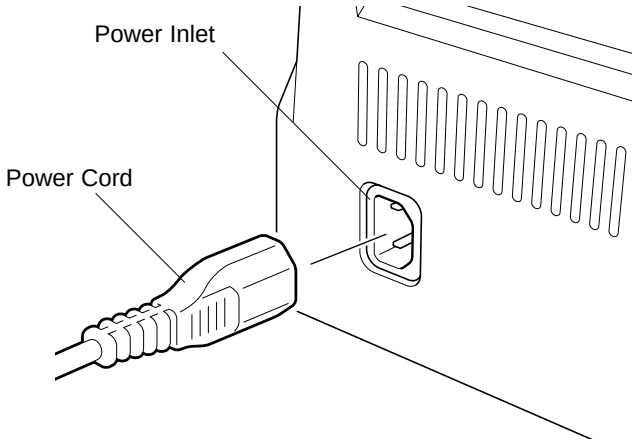
4) Connect the other end of the Printer Cable to the system unit.

7. Connecting the Power Cord

1) Turn the printer Power Switch OFF (marked with a "O" symbol).



2) Connect the Power Cord to the Power Inlet.

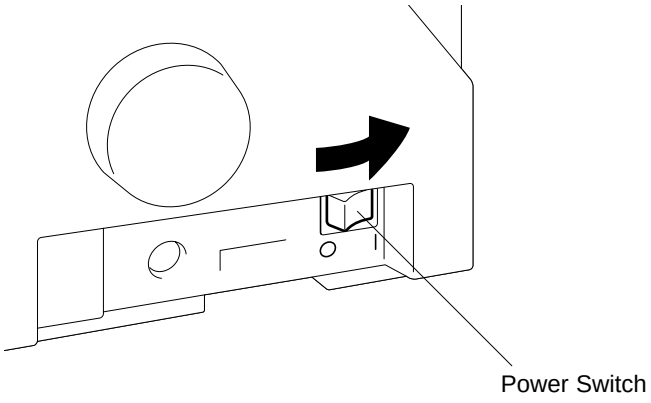


3) Insert the other end of the Power Cord into the wall outlet.

8. Test Print

The Test Print procedure is described for the use with Cut Sheet Paper. For the installation procedure for Fanfold Paper, refer to Chapter 3, Section 2: Installing Fanfold Paper, page 3-10. For details about paper, refer to Chapter 7: About Paper, page 7-1.

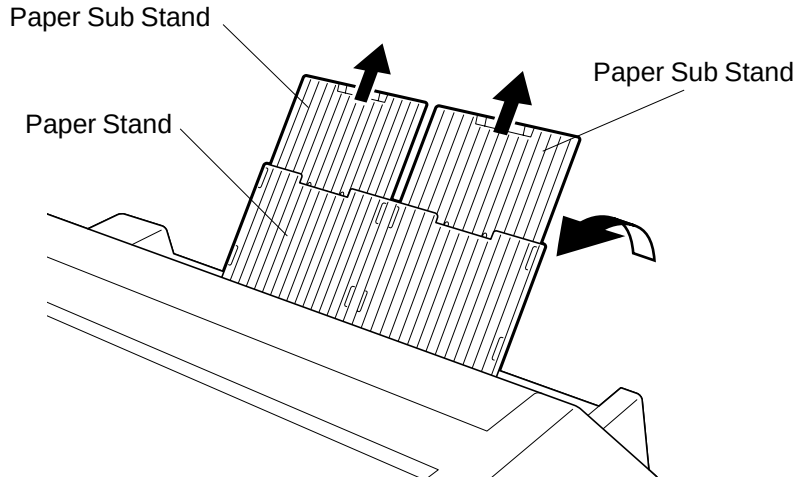
1) Turn the printer Power Switch ON (marked with a " | " position).



2) Set the Paper Thickness Adjustment Lever according to the type and thickness of the paper to be used. Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

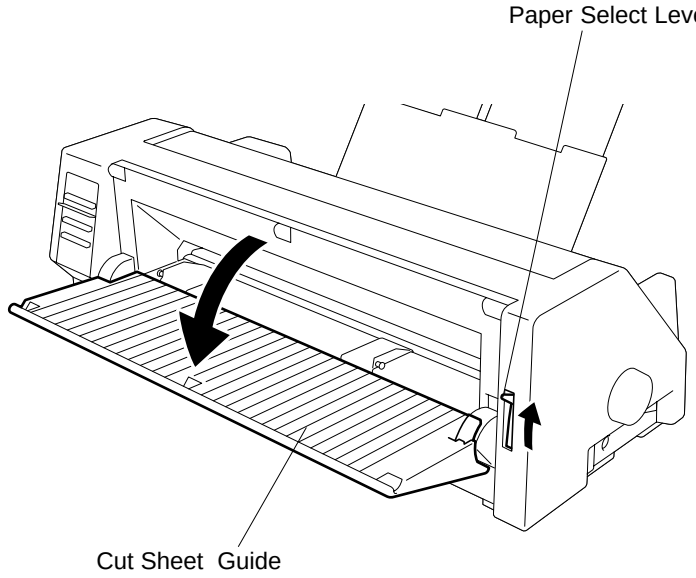
3) Raise the Paper Stand up in the direction indicated by the arrow.

4) Hold the Paper Stand while pulling out the Paper Sub Stand.



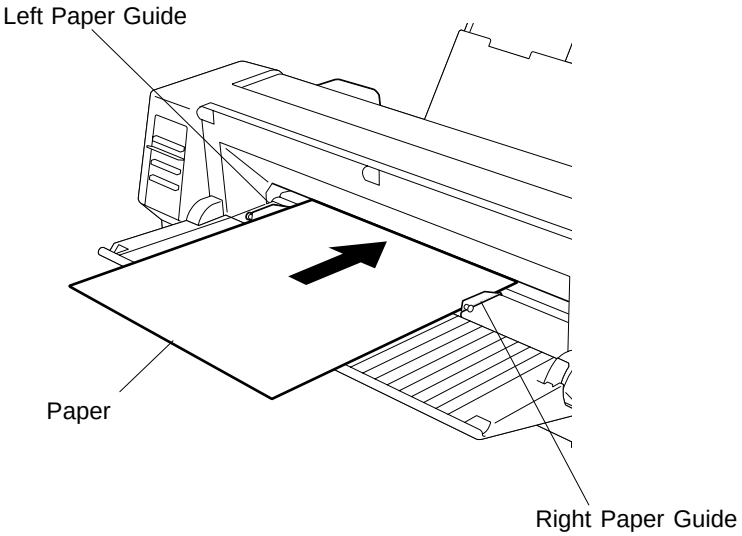
5) Pull up the Paper Select Lever to set it to Cut Sheet Paper mode.

6) Open the Cut Sheet Guide.



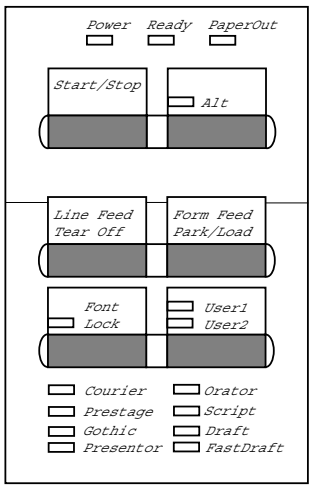
7) Match the left and right Paper Guides with the right paper edges.

8) Insert the paper into the printer until it stops against the inside roller. After approximately 1 second the paper will be automatically fed to the print position.

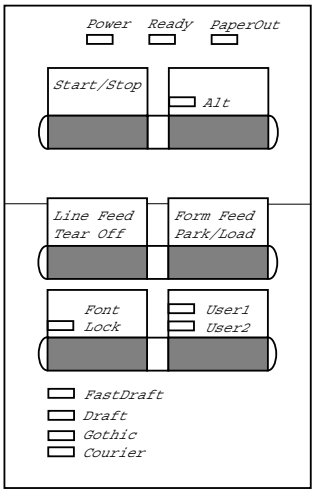


9) Turn the Power Switch OFF (marked with a "O" symbol), then turn the Power Switch ON (marked with a " | " symbol) while holding down the [LINE FEED] key. The printer will start a test print.

for 3036/3036N

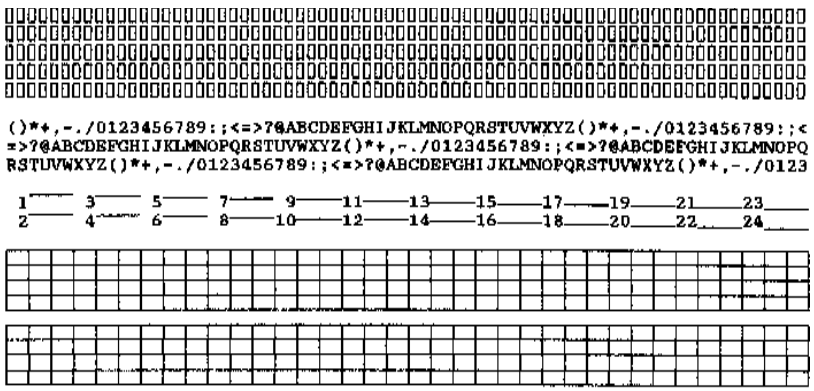


for 3031/3031N

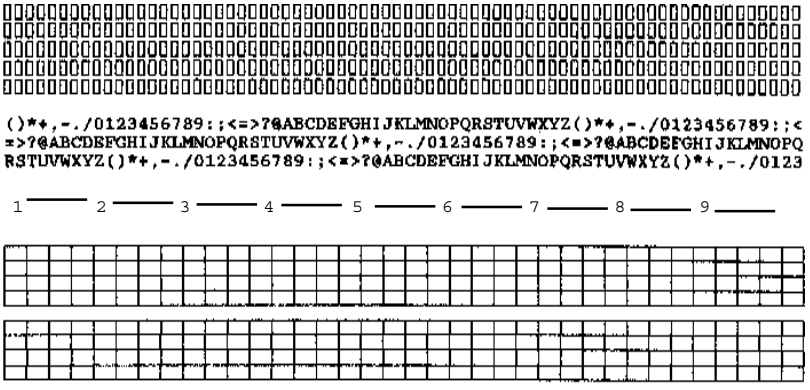


10) The following shows a test print sample. If there is anything wrong in the printout, contact the store where the product was purchased.

for 3036/3036N:


()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ()*+,-./0123456789:;<
=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
RSTUVWXYZ()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ()*+,-./0123
1 3 5 7 9 11 13 15 17 19 21 23
2 4 6 8 10 12 14 16 18 20 22 24

for 3031/3031N:



11) To complete the test print, first press the [Start/Stop] key to stop printing, then turn the printer Power Switch OFF "O".

9. Application Software

This section describes the Printer Type to be set in the application software. Select one of the following printer drivers:

Epson Emulation Mode (factory default)

If the printer is configured for the Epson mode, select a following printer from the printer selection menu of the application software.

3036
- Epson LQ1050

3031
- Epson FX1170

3036N
- Epson LQ850

3031N
- Epson FX850

IBM Emulation Mode

If the printer is configured for the IBM mode, select a following printer from the printer selection menu of the application software.

3036
- IBM Proprinter XL24

3031
- IBM Proprinter III XL

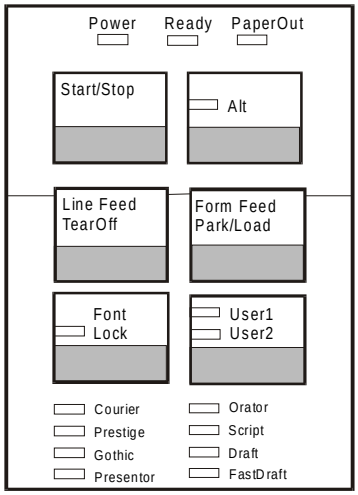
3036N
- IBM Proprinter X24

3031N
- IBM Proprinter III

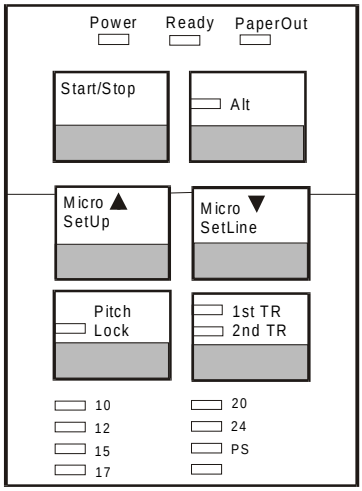
Chapter 2: Operation Panel

The Operation Panel consists of 6 function keys, with which the printer operating modes can be set and 15/13 lamps to indicate the printer status.
The keys have different functions depending on the Function Cover OPEN/CLOSED status and the Alt function ON/OFF status. Also the operation panel lamps show different printer states depending on the Function Cover OPEN/CLOSE status.

for 3036/3036N:

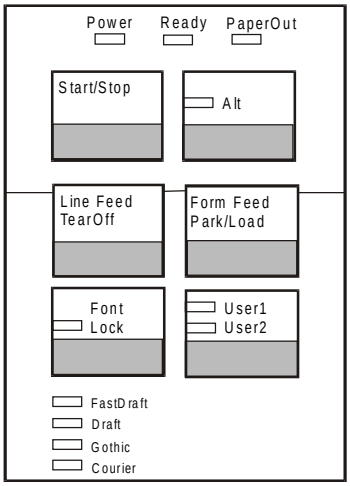


Function Cover CLOSED Status

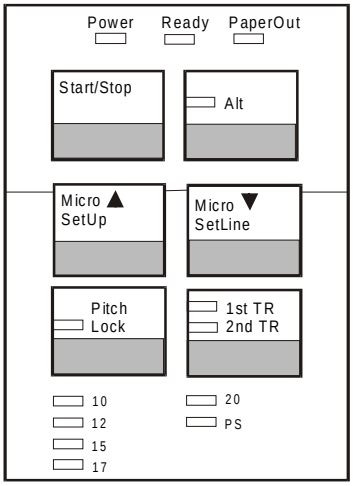


Function Cover OPEN Status

for 3031/3031N:



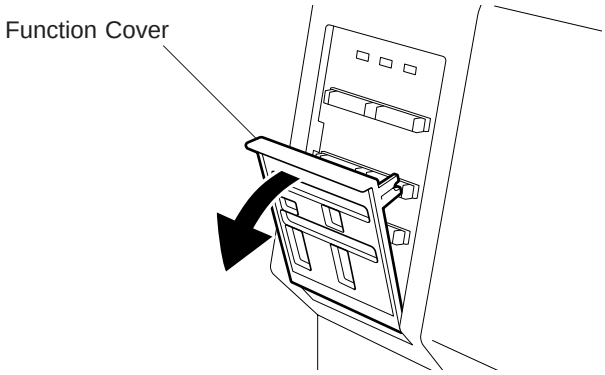
Function Cover CLOSED Status



Function Cover OPEN Status

1. Opening and Closing the Function Cover

To open the Function Cover pull it down as shown in figure.
To close the Function Cover simply push it up in th reverse direction.



2. Turning the Alt Function ON/OFF

The Alt function is turned ON or OFF by pressing the [Alt] key on the Operation Panel.
The Alt lamp is lit when the Alt function is ON (effective), and it turns off when the Alt function is OFF (ineffective).
When the Alt function is OFF (i.e., the Alt lamp is off), the function keys perform the function indicated with white characters on each key. When the Alt function is ON (i.e., the Alt lamp is lit), the function keys perform the function indicated by the black characters.

3. Key Functions

(1) When the Function Cover is closed and the Alt function is OFF (i.e., the Alt lamp is off):

KEY NAME	PRINTER STATUS	FUNCTIONS
Start/Stop	On-Line/Off-Line	• Every time this key is pressed, the printer status alternates between online (with the START/STOP lamp lit) and offline (with the Ready lamp off). • Pressing this key during printing, the printer goes offline after the current line. • In the Fanfold Paper mode and an out of paper condition (i.e. the PAPER OUT lamp is lit), pressing this key the Fanfold Paper is fed up to the first print position (TOF). • Pressing this key after having cleared an error condition (such as paper jam) switches the printer back online.
Alt	Off-Line	• Pressing this key the Alt function will be temporarily turned on (the Alt lamp is lit). After 1 second the Alt lamp will go off and the Alt function will be deactivated. The [Tear Off], [Park/Load] and [Font Lock] keys may then be used.
Line Feed	Off-Line	• Pressing this key feeds the paper forward 1 line. NOTE: The line feed is performed according to the current line feed value set in the Initial Setting or by a software command.
Form Feed	Off-Line	•The function of this key varies according to the paper used: Fanfold Paper: Feeds the paper up to the first print position (TOF) of the next page. Cut Sheet (Manual Insertion): Ejects the paper. Cut Sheet (ASF): The currently loaded sheet is ejected and the next sheet is loaded. NOTE: If loaded paper length does not correspond to the paper length set by the page length setting command or by the Initial Setting in Fanfold Paper mode, the paper will not be fed correctly to the print start position (TOF) of the next page.

KEY NAME	PRINTER STATUS	FUNCTIONS
Font	Off-Line	• When this key is pressed, the font style changes in the following order. Courier -> Prestige -> Gothic -> Presentor -> Orator -> Script -> Draft -> FastDraft -> Courier • The selection becomes effective after few lines have been printed.
User 1 / User 2	Off-Line	• This key selects user setting. Simultaneously, the corresponding lamp is turned on. The following parameters can be stored in a user setting. Character Setting Menu: Font, Pitch, Zero Slash Forms Setting Menu: Form Length, Line Length, Skip Over Perforation, Cut Sheet Bottom, LPI Data Control Menu: Ejection by FF, FF Enable

(2) When the Function Cover is closed and the Alt function is ON
(i.e., the Alt lamp is lit):

KEY NAME	PRINTER STATUS	FUNCTIONS
Tear Off	On-Line/Off-Line	• After printing is complete in the Fanfold Paper mode, pressing this key the paper perforation is moved to the tear bar position, according to the current paper length. • Pressing this key, when the paper perforation is in tear-off position, the paper is moved to the first print position (TOF). • During the printout this key is disabled.
Park/Load	Off-Line	• This key is enabled only in Fanfold Paper mode. • When the Fanfold Paper has already been loaded, pressing this key the paper is moved to the park position. • When the Fanfold Paper is in the parking position, pressing this key the paper is fed up to the first printing position (TOF).
Font Lock	Off-Line	•Pressing this key when the Font Lock lamp is off, the Font Lock lamp lights and the Operation Panel functions and any selections made via software are disabled. •Pressing this key when the Font Lock lamp is on, the Font Lock lamp turns off and the selections made via software are enabled.

(3) When the Function Cover is open and the Alt function is OFF
(i.e. the Alt lamp is off.)

KEY NAME	PRINTER STATUS	FUNCTIONS
Start/Stop	On-Line/Off-Line	• Same as for (1) (Function Cover closed and Alt lamp off).
Alt	Off-Line	• Pressing this key the Alt function will be temporarily turned on (the Alt lamp is lit). After 1 second the Alt lamp will go off and the Alt function will be deactivated. The [Set Up], [Set Line 1] and [Pitch Lock] keys may then be used.
Micro ↑	On-Line/Off-Line	• Pressing this key the paper is fed forwards for 0.28 mm (1/90 in.). • During the printout this key is disabled.
Micro ↓	On-Line/Off-Line	• Pressing this key the paper is fed backwards for 0.28 mm (1/90 in.). • During the printout this key is disabled.
Pitch	Off-Line	• When this key is pressed, the character pitch changes in the following order. *1 10 -> 12 -> 15 -> 17 -> 20 -> 24 -> PS ->10 • The selection becomes effective after few lines have been printed.
1st TR / 2nd TR	Off-Line	• This key is enabled only when the Optional Tractor (upper tractor) is installed. • Pressing this key, the selection toggles between the standard (lower) tractor and the Optional (upper) tractor.

*1 only for 3036/3036N

(4) When the Function Cover is open and the Alt function is ON
(i.e. the Alt lamp is lit.)

KEY NAME	PRINTER STATUS	FUNCTIONS
Set Up	Off-Line	• Pressing this key selects the Set Up menu.
Set Line 1	Off-Line	• The [SetLine 1] key allows you to set the 1st print line on the logical page. The adjustment of the position is made with the [Micro ↑], [Micro ↓] and [Line Feed] key. If you move the paper manually by means of the Paper Knob and then adjust the first print line with the keys, the top margin remains unchanged. • Pressing this key, it is possible to set the top margins for the following paper formats: 1) Fanfold Paper on the 1st tractor 2) Fanfold Paper fon the 2nd tractor 3) Cut Sheet in ASF - fed manually 4) Cut Sheet fed manually 5) Cut Sheet in ASF • The TOF adjustment values range from +11 inch to -1 inch. The Tear Off adjustment values range from +1 inch to -1 inch. Values exceeding the above ranges may not be used, and if entered cause an error signal.
Pitch Lock	Off-Line	• Pressing this key when the Pitch Lock lamp is off, the Pitch Lock lamp lights and the Operation Panel functions and any selections made via software are disabled. • When this key is pressed while the Pitch Lock lamp is turned on, the Pitch Lock lamp lights and the Operation Panel functions and any selections made via software are enabled.

4. Lamp Functions

(1) When the Function Cover is closed:

LAMP NAME	COLOR	FUNCTIONS
Power	Green	• It is lit when the Power Switch is set ON ("|") and unlit when the Power Switch is OFF "O".
Ready	Green	• It is lit when the printer is in online mode and unlit when the printer is in offline mode. • It blinks when the Tear Off function is activated.
Paper Out	Orange	• It is lit when the Fanfold Paper Mode is selected and there is no paper in the printer, or unlit when paper is present.
Alt	Green	• It is lit when the Alt function is ON, and unlit when the Alt function is OFF.
Font Lock	Green	• It is lit when the font lock condition has been set pressing the [Font Lock] key.
User1 / User2	Green	• The lamp indicating the currently selected user setting is lit.
Courier .....Fast Draft	Green	• The lamp indicating the currently selected font is lit. (Courier,.....,FastDraft)

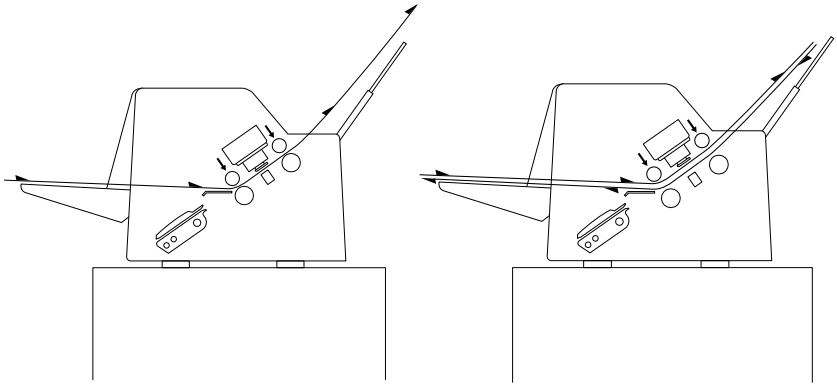
(2) When the Function Cover is open:

LAMP NAME	COLOR	FUNCTIONS
Power	Green	• Same as for "(1) When the Function Cover is closed."
Ready	Green	• Same as for "(1) When the Function Cover is closed."
Paper Out	Orange	• Same as for "(1) When the Function Cover is closed."
Alt	Green	• Same as for "(1) When the Function Cover is closed."
Pitch Lock	Green	• It is lit when the font lock condition has been set pressing the [Pitch Lock] key.
1st TR	Green	• It is lit when the standard (lower) tractor is selected for Fanfold handling.
2nd TR	Green	• It is lit when the optional (upper) tractor is selected for Fanfold handling.
10 .....PS	Green	• The lamp indicating the currently selected pitch is lit. 3036/3036N (10,12,15,17,20,24,PS) 3031/3031N (10,12,15,17,20,PS)

Chapter 3: Paper Handling

1. Cut Sheet Paper

Cut Sheets are inserted from the front of the printer. The printed paper can be fed out from the rear or the front side. Please refer to Chapter 4: Initial Setting, page 4-4.

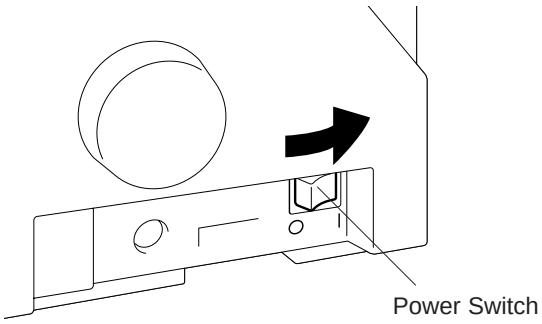


Rear Out

Front Out

1.1. Loading Cut Sheet Paper

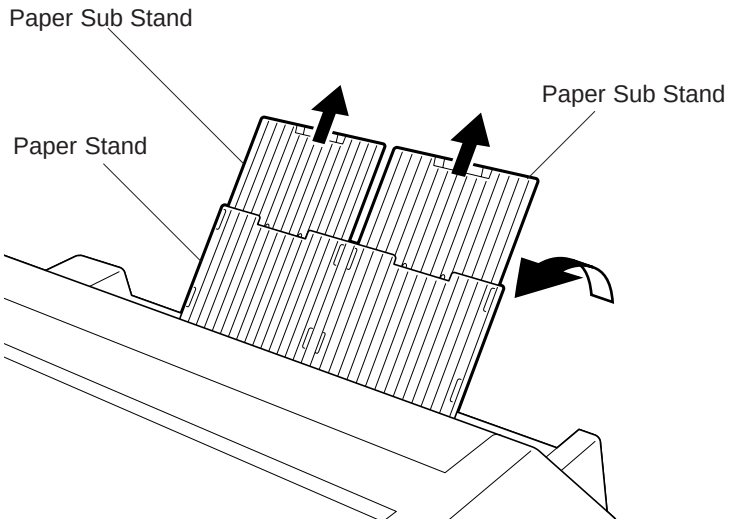
1) Turn the Power Switch of the printer ON " | ".



2) Adjust the Paper Thickness Lever according to the type of paper to be used. Refer to Section 5: Paper Thickness Adjustment, page 3-19.

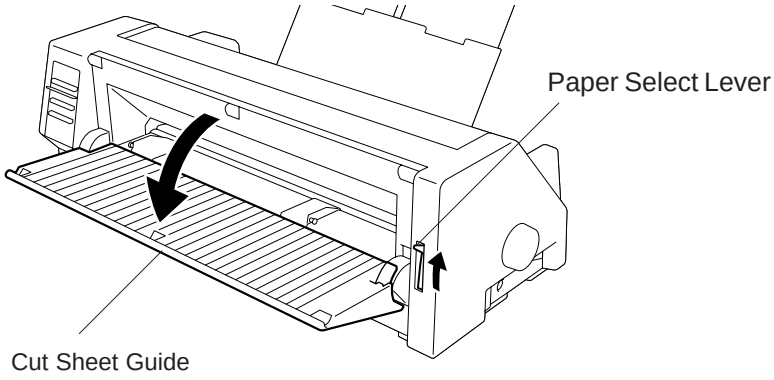
3) Raise the Paper Stand as shown in the following figure.

4) Hold the Paper Stand while pulling up the Paper Sub Stands.

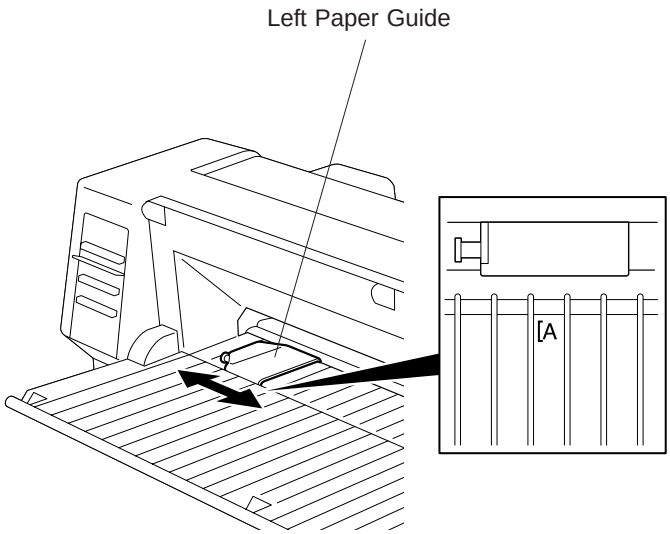


5) Set the Paper Select Lever to Cut Sheet Paper mode.

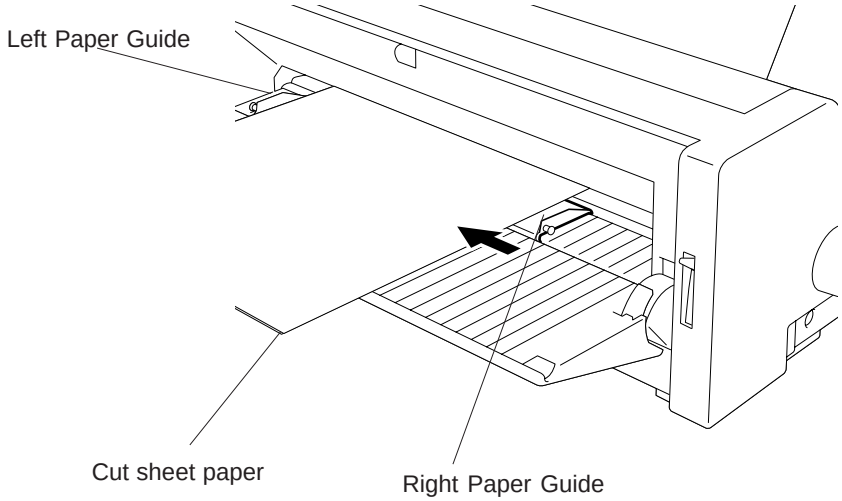
6) Open the Cut Sheet Guide.



7) Set the left margin by moving the Left Paper Guide Left to the desired position. (The "[A" mark indicates the standard print start position.)



8) Place the Cut sheet on the paper stand aligning it to the Left Paper Guide and match the Right Paper Guide with the right edge of the paper.



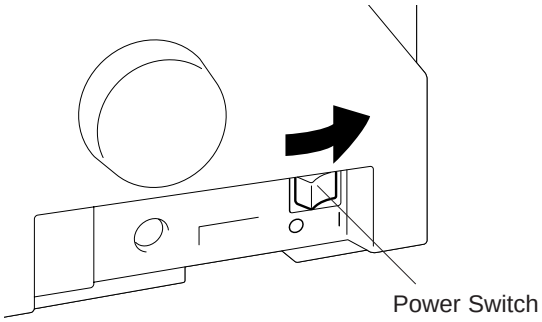
9) Insert the paper between the Left and Right Paper Guides. The paper is automatically fed to the first print line, the Ready lamp lights and the printer is ready for printing.

NOTES: 1. If the PRINT lamp is not lit, the Cut Sheet Auto Insert function has been disabled in the Initial Setting. In this case, press the [Start/Stop] key to get the printer ready.

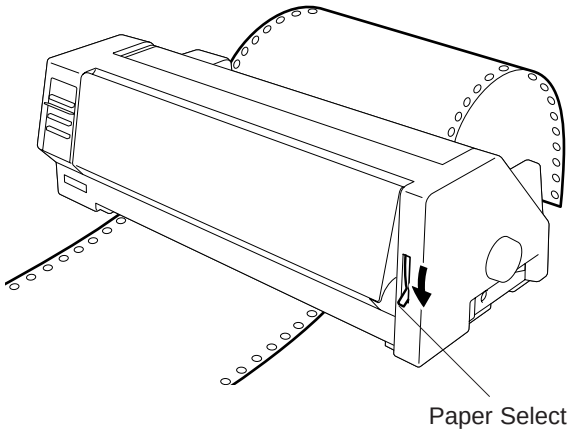
2. If the paper is fed out to the rear side of the printer, about 30 sheets can be printed before the paper interferes with the outcoming sheets. If the paper is ejected to the front of the printer, each sheet must be removed before printing a new one.

1.2. Loading Cut Sheet Paper (when Fanfold Paper is already in the printer)

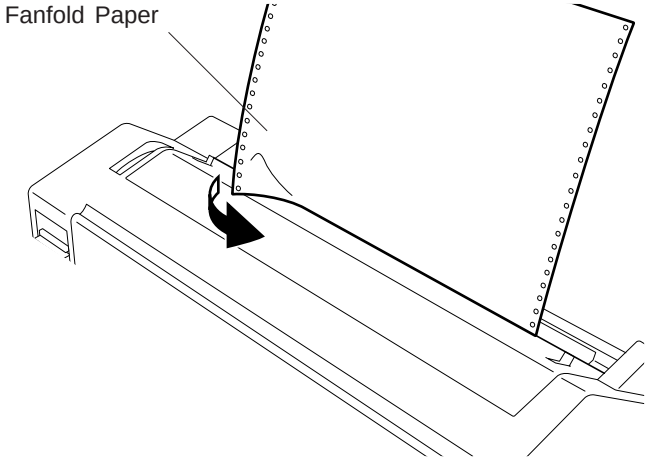
1) Turn the printer Power Switch to ON " | ".



2) Set the Paper Select Lever to Fanfold Paper mode.



3) Tear the fanfold paper at the tear off bar. See also Section 6: Tear-off Function, page 3-20.



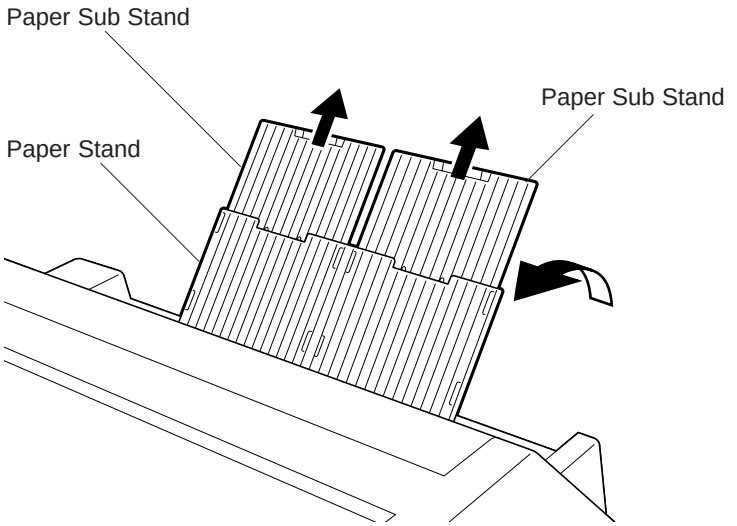
4) Press the [Start/Stop] key to change the printer status to off-line.

5) Press the [Park/Load] key. The paper is fed back to the parking position.

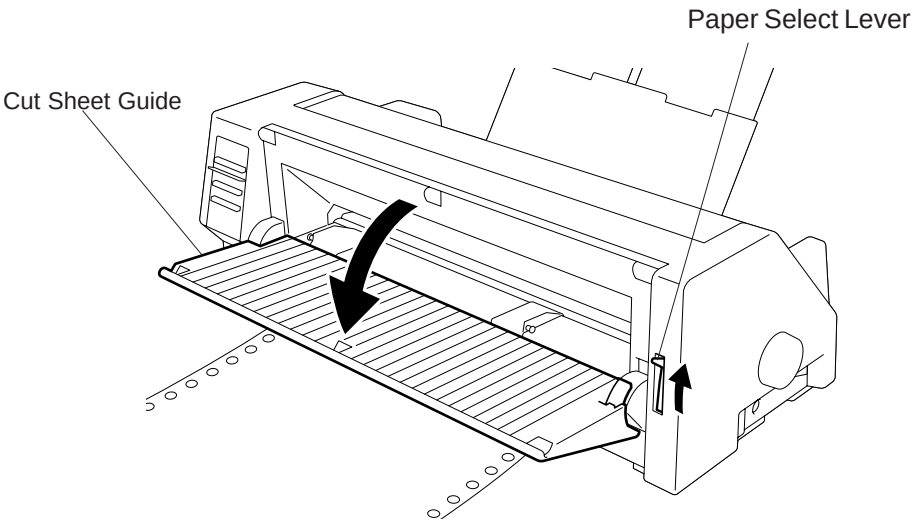
6) Set the Gap Set Lever according to the thickness and the paper type to be used. Refer to Section 5: Paper Thickness Adjustment, page 3-19.

7) Raise the Paper Stand to the upper position.

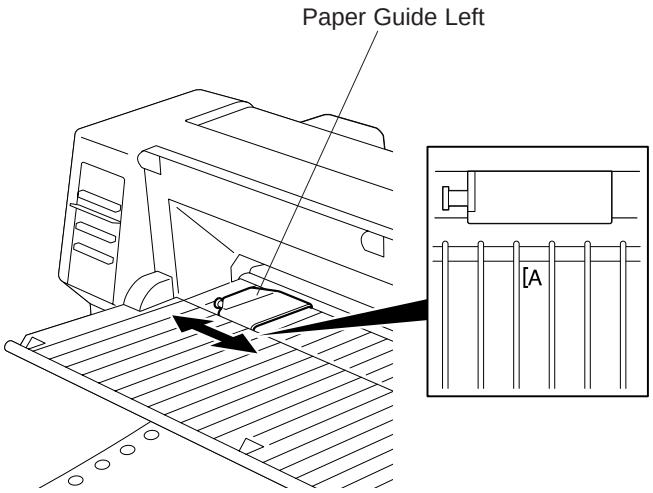
8) Holding the Paper Stand while pulling up the Paper Sub Stand.



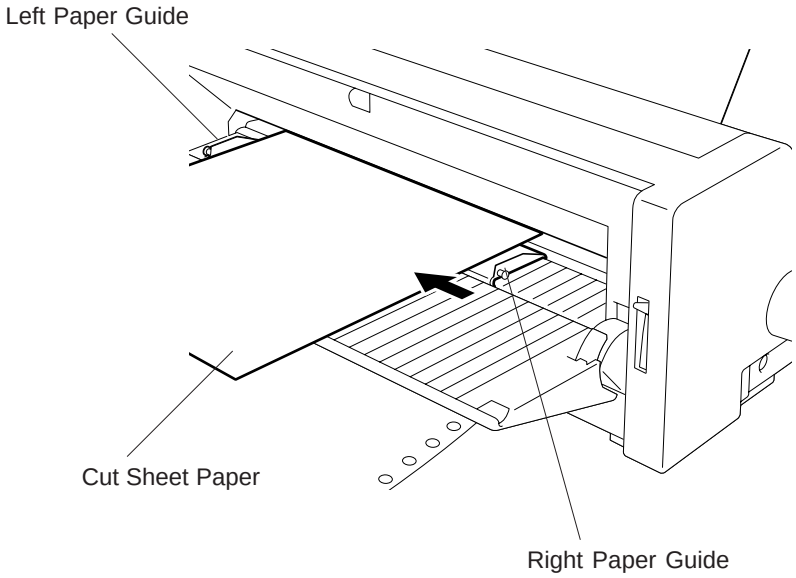
9) Push the Paper Select Lever up to set the Cut Sheet Paper mode.
10) Open the Cut Sheet Guide.



11) Move the Left Paper Guide to the desired left margin position. (The "[A" mark indicates the standard print start position.)



12) Place the Cut sheet on the paper stand aligning it to the Left Paper Guide and match the Right Paper Guide with the right edge of the paper.



13) Insert the paper between the Left and Right Paper Guides.
The paper is automatically fed to the print start position, then the Ready lamp is lit and the printer is on-line.

NOTES:1. If the PRINT lamp is not lit, the Cut Sheet Auto Insert function has been disabled in the Initial Setting.
In this case, press the [Start/Stop] key to get the printer ready.

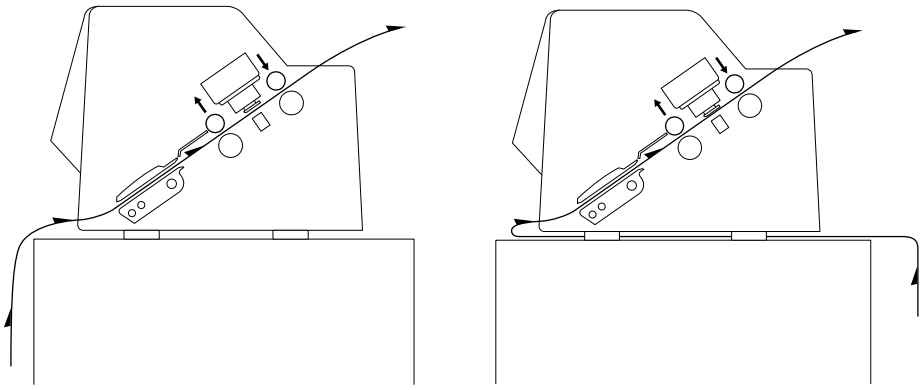
2. If the paper is fed out to the rear side of the printer, about 30 sheets can be printed before the paper interferes with the outcoming sheets. If the paper is ejected to the front of the printer, each sheet must be removed before printing a new one.

14) To print with Fanfold Paper again after the printing on a cut sheet, push down the Paper Select Lever to set the Fanfold Paper mode then press the [Park/Load] key to load the paper into the printer.

NOTE) When using Fanfold Paper, replace the Paper Stand and Paper Sub Stand to the original positions.

2. Loading Fanfold Paper

Fanfold Paper is loaded from the front side of the printer, and is output from the rear top side of the printer.

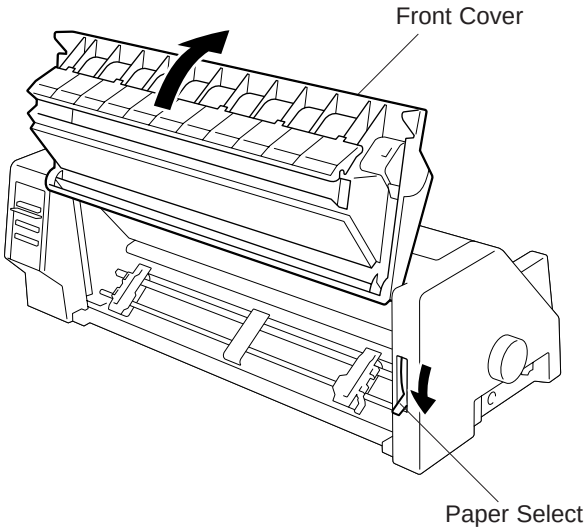


Front Loading

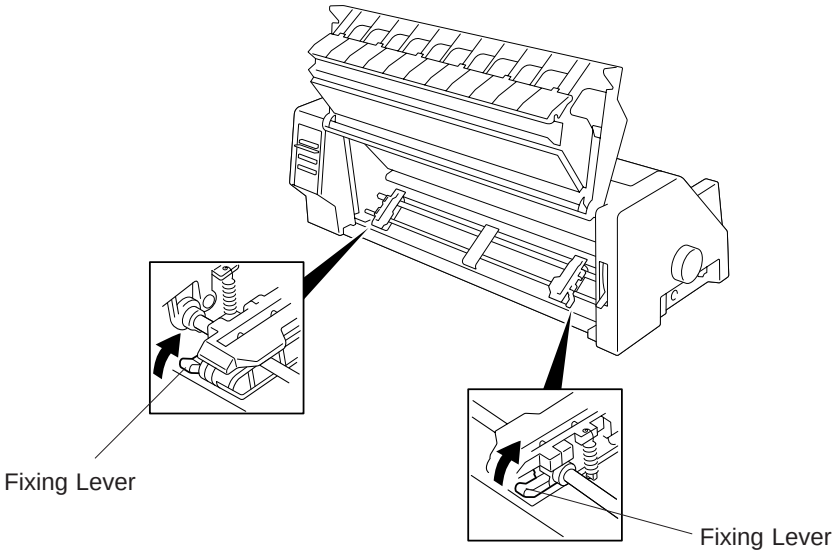
Rear Loading

NOTE) When using Fanfold Paper, replace the Paper Stand and Paper Sub Stand to their original positions.

1) Adjust the Paper Thickness Adjust Lever according to the thickness and type of used paper.
   See also Section 5: Paper Thickness Adjustment, page 3-19.
2) Push down the Paper Select Lever to set the printer to Fanfold Paper mode.
3) Open the Front Cover.



4) Raise the Fixing Levers of the Left and Right Sprockets (as shown in figure), to free them.

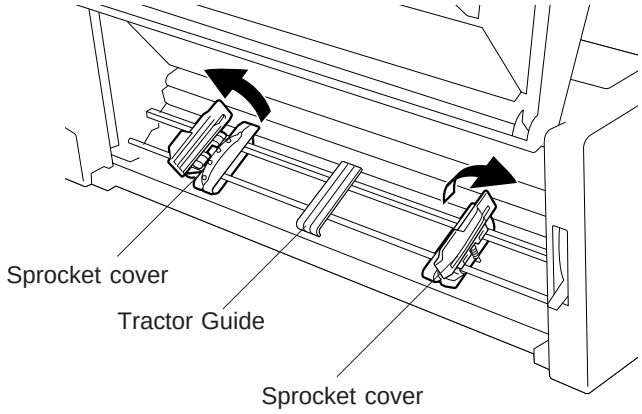


5) Open the two Sprocket covers.

6) Match the Left and Right Sprockets to the paper width.

7) Move the Tractor Guide to the center of the tractor.

NOTE) The Tractor Guide is installed only on the tractors of the 3031 and 3036 models.

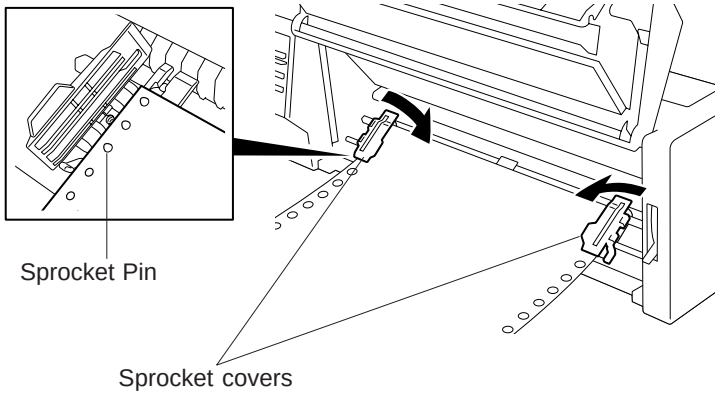


8) With the printing side of paper facing up, insert the left feeding holes of the paper onto the Left Sprocket pins and close the Sprocket cover.

NOTE) Make sure that the paper is inserted in loading direction.

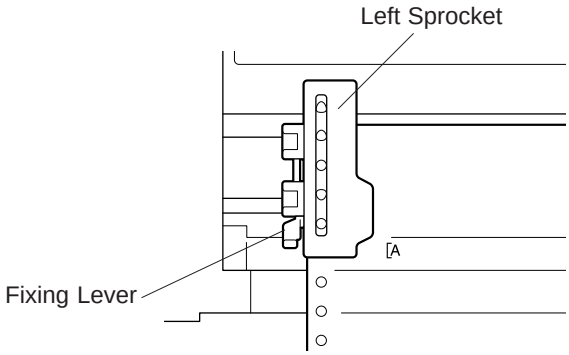
9) Insert the right feeding holes of the paper onto the Right Sprocket pins and close the Sprocket cover.

NOTE) Make sure that the paper is inserted correctly on both sprockets, to avoid paper jam.



10) Move the two Sprockets to align the paper with the left margin. The "[A" mark on the paper support shows the standard left margin position.

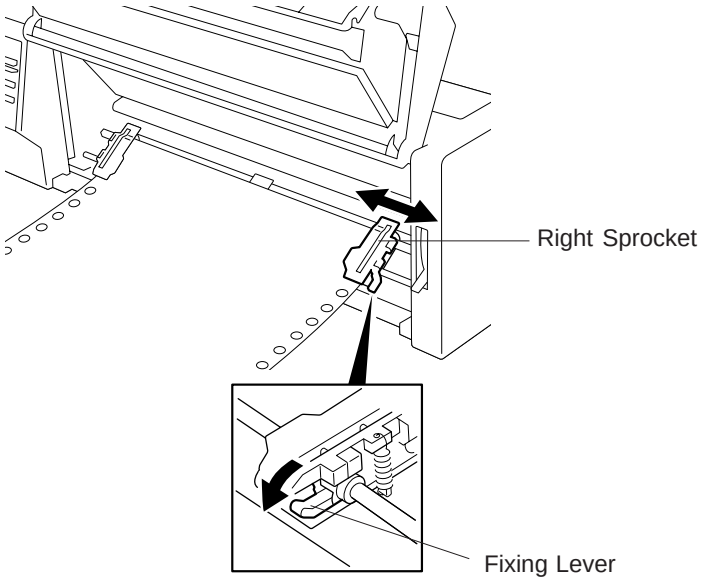
11) Push down the Left Sprocket Fixing Lever to lock the Sprocket.



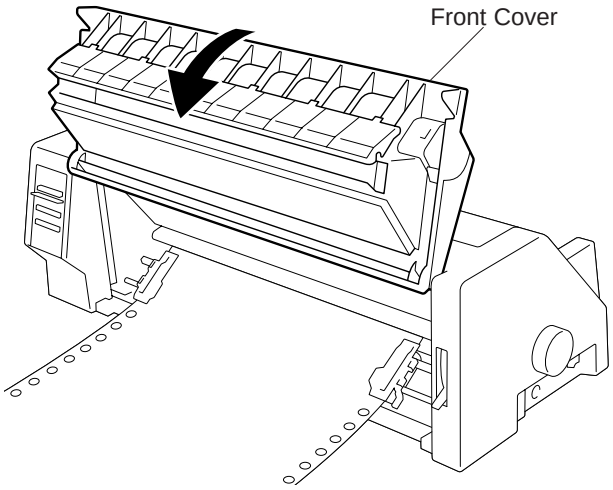
12) Move the Right Sprocket to the right until the paper lies down flat on the tractor and push down the Fixing Lever to lock the Sprocket in place.

NOTE) If the paper does not lie flat and the right sprocket is already at the rightmost position, remove the slack moving the left sprocket to the left. Do not stretch paper too much, because it may tear.

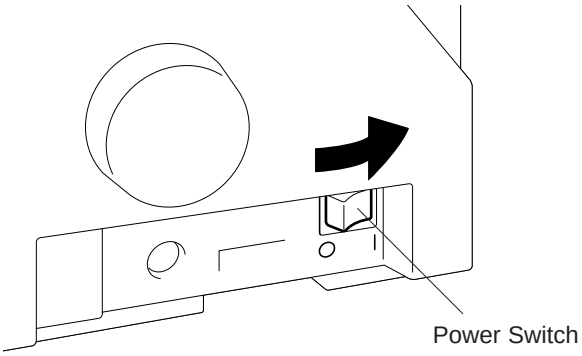
13) Close the Front Cover.



NOTE) Before closing the Front Cover, assure that the Sprocket Covers are closed.



14) Turn the Power Switch to the ON " | " position.



15) Press the [Start/Stop] key. Paper is loaded and the printer goes on-line.

16) If you want to use the 2nd Tractor (option) together with the 1st Tractor Mode (standard), see Chapter 6, Section 2.3.5: Alter nating the Tractors, page 6-28.

3. Print Start Position Adjustment

3.1. Cut Sheet Paper

1) Push up the Paper Select Lever to set the printer to Cut Sheet Paper mode.
2) Insert a cut sheet paper. The paper is automatically fed up to the print start position to make the printer on-line.
3) Press the [Start/Stop] key to make the printer off-line.
4) Open the Function Cover, press the [Micro ↑] or [Micro ↓] keys to set a desired print start position .

   NOTE) The adjustable range is from -25.4 mm (-1 in.) through +279.4 mm (+11 in.).

5) Press the [Alt] key then press the [Set Line 1] key.
   The current position is stored as the top print line position (print start position). This setting is kept even after the Power Switch is turned to the OFF "O" .

   NOTE) Please do not adjust the paper position using the Knob before pressing the [Set Line 1] key. The correct print start position will not be stored if the Knob is used.

3.2. Fanfold Paper

1) Push down the Paper Select Lever to set the Fanfold Paper mode.
2) Install the fanfold paper.
3) Press the [Park/Load] key. The paper is fed up to the print start position.
4) Open the Function Cover, then press the [Micro ↑] or [Micro ↓] keys to set a desired print start position.

   NOTE) The adjustable range is from -25.4 mm (-1 in.) through +279.4 mm (+11 in.).

5) Press the [Alt] key, then press the [Set Line 1] key.
   The current position is stored as the top print line position (print start position). This setting is kept even after the Power Switch is turned to the OFF "O".

   NOTE) Please do not adjust the paper position using the Knob before pressing the [Set Line 1] key. The correct print start position will not be stored if the Knob is used.

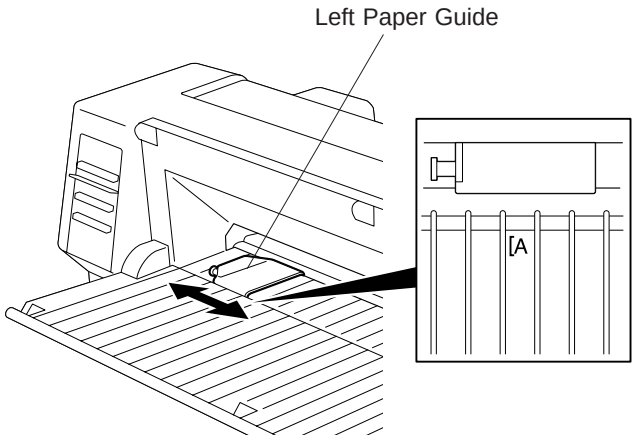
4. Left Margin Adjustment

This section describes how to adjust the left margin value. The "[A" mark on the left side of the Cut Sheet Support and at the left bottom of the tractor unit gives a standard reference for the first print start position.

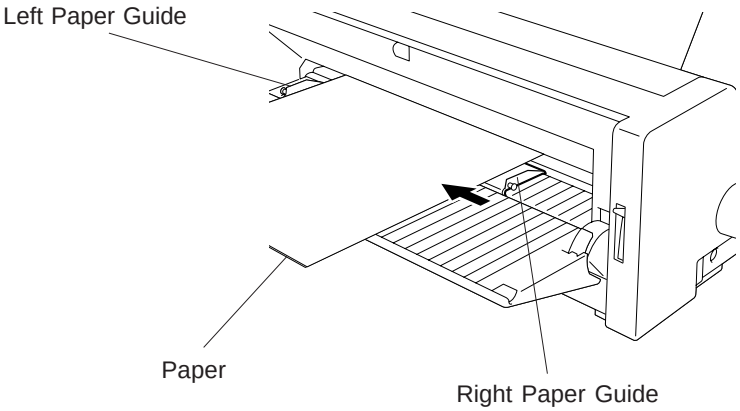
4.1. Cut Sheet Paper

1) Place a sheet on the Cut Sheet Support, and align it to the Left Paper Guide.

2) Match the Left Paper Guide with the "[A" mark on the Cut Sheet Support.



3) Align the Right Paper Guide Right with the right paper margin.

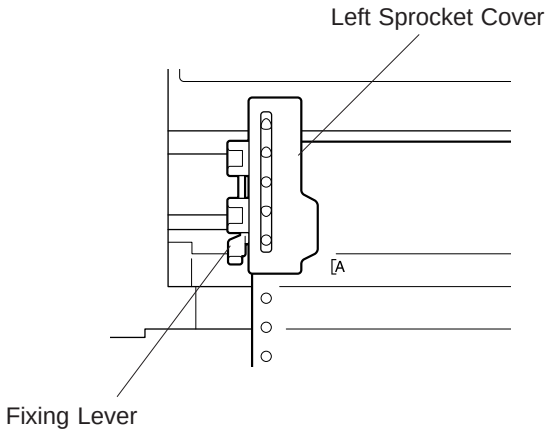


4.2. Fanfold Paper

1) Install paper on the two sprockets.

2) Match the left paper margin with the "[A" mark on the printer.

3) Push down the Fixing Lever of the Left Sprocket to lock it in place.

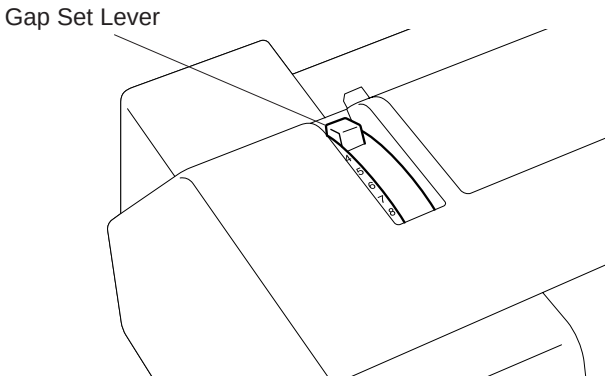


4) Move the Right Sprocket to the right to remove paper slack and push down the Fixing Lever to lock the Right Sprocket.

NOTE) If the paper does not lie flat and the right sprocket is already at the rightmost position, remove the slack moving the left sprocket to the left. Do not stretch paper too much, because it may tear.

5. Paper Thickness Adjustment

To obtain optimum print quality, the gap between the Print Head and the Platen needs to be adjusted according to the thickness of paper to be used.



The following table shows the adjustable range:

Number of Copies	Thickness of Paper	Ream (Kg)	Paper Adjust Lever Position
Original only	Thin	45-55	1
	Normal	55-77	1-2
	Thick	77-110	2
Original + 1		34/34	2-3
Original + 2		34/34/34	2-4
Original + 3		34/34/34/34	3-4
*1 Original + 4		34/34/34/34/34	3-5
*1 Original + 5		34/34/34/34/34/34	3-6
Post Card		110	3
Reserved			7-8

*1 Only for 3031

NOTES) 1. "Ream" is a unit of paper thickness, indicating the weight of 1,000 cut sheets in size of 788 mm x 1091 mm (weight unit: Kg).

2. For paper of the original sheet only, Cut Sheet Paper of 45 Kg or thicker or Fanfold Paper of 50 Kg or thicker can be used.

3. When the Paper Adjust Lever is set to a value larger than the appropriate value above, the printout appears scratchy and it shortens the lives of the print head and the ink ribbon.

6. Tear-off Function

This printer allows to feed paper up to the tear bar position by pressing the [Tear Off] key (Tear Up). In this way you do not waste Fanfold paper when tearing it off.
After tearing the paper at the tear bar, the paper will be returned to the print start position. (Tear Down)
This function is called "Tear Off" function.
If "Auto Tear Off" is enabled in setup menu, the printer operates as follows:
When there is no data to be printed in the receive buffer, the TOF conditions are met and no data is sent from the PC, the printer automatically feeds up paper to the tear bar position. (Auto Tear Up)
When data is received from the PC and the paper is in tear up state, the printer automatically returnes the paper to the print start position. (Auto Tear Down)
This function is called "Auto Tear Off" function.

6.1. Adjusting the Tear Position

When Tear off function is executed, if the paper perforation does not match the tear bar, adjust the Tear Position as follows:

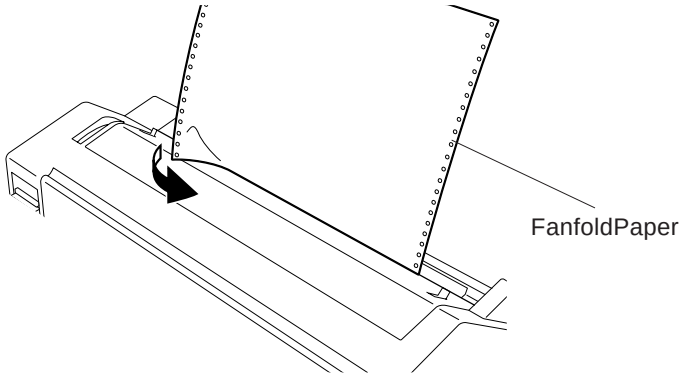
NOTE) Before adjusting the Tear Position, adjust the page length of the used paper in the Initial Setting or with the Page Length Setting command.

1) Install fanfold paper.
   See Section 2: Fanfold paper handling, page 3-10 in this chapter.
2) Press the [Start/Stop] key to switch the printer online.
3) Press the [Form Feed] key to feed the paper for the length of one page.
4) Press the [Tear Off] key to feed the paper up to the Tear Bar Position.
5) Open the Function Cover. Then press the [Micro ↑] or [Micro ↓] keys to move the paper perforation to the required Tear Bar Position.
   NOTE) The adjustable range is ±25.4 mm (±1 in.).
6) Press the [Alt] key, then press the [Set Line 1] key. The current position is stored as the Tear Bar Position. This position will be kept even when the Power Switch is turned to the OFF "O" position.
   NOTE) Do not adjust the paper position using the Knob before pressing the [Set Line 1] key, or the correct position will not be stored.
7) Close the Function Cover, then press the [Tear Off] key.

6.2. Tearing off the Paper at a Tear Bar

(1) When printing is complete, press the [Tear Off] key to feed the paper up to the Tear Bar Position.

(2) Using the Tear Bar, tear the paper at the perforation.



(3) Press the [Tear Off] key to return the paper to the print start position.

7. Paper Park Function

This printer allows to print on cut sheet paper without removing already loaded continuous paper from the tractor, but parking the fanfold paper.

1) Tear off the printed fanfold paper at the Tear Bar.
   For tearing off the paper, see Section 6: Tear-off Function, page 3-20 in this chapter.

2) Press the [Park/Load] key. The fanfold paper is moved to the park position and the Paper Out lamp is lit.

3) When the fanfold paper is in the park position, load a cut sheet.
   See Section 1: Loading Cut Sheets, page 3-1 in this section.

4) After the cut sheet has been printed and fed out, return the Paper Stand and the Paper Sub Stand to their original positions.

5) Set the Paper Type Select Lever to Fanfold Paper Mode.

6) Press the [Park/Load] key. The fanfold paper is fed from the tractor to the print start position, and the Paper Out lamp turns off.

7) Press the [Start/Stop] key to put the printer online.

Chapter 4. Initial Setting

This printer's default settings may be changed by using the Operation Panel.
The most recent settings are stored in memory even when the Power Switch is turned OFF "O," and will be effective when the Power Switch is again turned ON "|".
In this chapter, the operation sequence from starting the initial value settings to ending them is called "Initial Setting Mode,", and the rest is called "Normal Print Mode."

1. Set Items

In the Initial Setting Mode, the settings of the following items can be changed.

1.1. Character Settings

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
Font (user1) (user2)	FastDraft Draft Courier Prestige *1 Gothic Presentor *1 Orator *1 Script *1	Courier (3036/36N) Draft (3031/31N)	Sets the font style for user1/2.
Pitch (User1) (User2)	10 12 15 17 20 24 *1 PS	10	Sets the font pitch of User 1/2.
Zero Slash (user1) (user2)	Enable Disable	Disable	Sets slash or non slash of zero for User 1/2

*1 Only for 3036/3036N

1.2. Forms Handling Settings

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
Form Length (user1) (user2)	Variable Min.: 1/6 in. Max.: 60 in.	11 inches selected.	Sets the page length of continuous paper. Ranging from 1/6 in. to 60 in., increments of 1/6 in. can be
Line Length (user1) (user2)	8 in. 13.6 in.	3031N, 3036N 8 in. 3031, 3036 13.6 in.	Sets the right limit of the printable width (right margin).
Skip Over Perforations (user1) (user2)	0 in. 1/2 in. 1 in. 2 in. 3 in.	0 in.	Selects whether or not the perforated line of continuous paper is skipped.
Cut Sheet Bottom margin (user1) (user2)	0 in. 1/8 in. 1/6 in. 1/4 in. 1/3 in. 1/2 in.	1/6 in.	Sets the bottom margin of the paper.
Line per Inch (user1) (user2)	2 line 3 line 4 line 5 line 6 line 7.5 line 8 line	6 line	Sets the number of print lines per inch.

1.3. Data Control Setting

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
Eject by FF (user1) (user2)	On Off	On	Select the Form Feed code handling method. <Enable> When DID is selected, a form feed is treated as paper ejection. <Disable> A form feed is fed to next page.
Buffer	0 KB 4 KB (3031/31N) 16 KB (3036/36N)	4 KB (3031/31N) 16 KB (3036/36N)	Sets the receive buffer size.
Auto LF	On Off	Off	Sets whether or not a line feed is automatically performed when a CR code is received.
Auto CR	On Off	Off	Sets whether or not a carrige return is automatically performed when one of the following vertical commands is received. -ESC Jn, LF, VT

1.4. Printer Control Setting

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
Auto TearOff	Auto Manual	Manual	Sets whether or not automatically tear off enable
Front Eject	DID: Off / ASF: Off DID: On / ASF: Off DID: Off / ASF: On DID: On / ASF: On	DID: Off / ASF: Off	Sets the cut sheet paper feed-out direction. (DID: manual paper feeding)
Ready on DID	Enable Disable	Enable	Sets whether or not automatically enter print mode after the cut sheet is manually loaded in unprintable mode.
Uni-Dir Print	On Off	Off	Sets print direction for single char-cter printing.
Paper Out Alarm	Enable Disable	Enable	Sets whether or not to disable the alarm when the paper has run out.
User Setting	Disable1 Enable1 Enable2 Disable2 Enable3 Enable4	Disable1	Sets the following item for user settings.(refer to note1)
Bi-Di Alignment			Adjusts the position gap of ruled lines between the two direction printing in Bi-directional print mode. For adjusting directions, refer to Section 4: Ruled Line Adjustment, page 4-17 in this chapter.

Note 1) User Setting

Disable 1	:	Both tractors depend on User 1 settings
Enable 1	:	TR1: User1, TR2: User2, Cut: User1
Enable 2	:	TR1: User1, TR2: User2, Cut: User2
Disable 2	:	Both tractors depend on User 1 settings
Enable 3	:	TR1: User1, TR2: User2, Cut: User1
Enable 4	:	TR1: User1, TR2: User2, Cut: User2

1.5. Emulation Setting

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
Emulation	IBM EPSON	EPSON	Selects IBM emulation or EPSON emulation.
AGM (IBM) *1	Enable Disable	Disable	Sets wheter or not to select high resolution graphic mode. This settings also changes the line density.
Code Page (IBM)	437 850 860 863 865	437	Selects the code page in the resident font area in IBM mode.
Char. Set (IBM)	Set1 Set2	Set1	Selects character set 1 or set 2 in IBM mode.
Pro-III *2 Mode (IBM)	On Off	Off	When this parameter is set on, Proprinter III Emulation is selected. When it is off, the ESC [command is partially supported.
20 Pitch *2 (IBM)	Enable Disable	Enable	Selects 20 cpi or 12cpi when 12cpi print mode is combined with condensed print mode.
Table Set (ESC/P)	Graphics Italics	Graphics	Selects either Epson Extended Graphic Character Table or Italic Character Table
Int'l Char Set (ESC/P)	USA France Germany UK Denmark Sweden Italy Spain	USA	Selects a character assigned to the code points: X'23",X'24",X'40"X'5B" X'5C",X'5D",X'5E",X'60",X'7B", X'7C",X'7D",X'7E" that is different by countries.

*1 Only for 3036/36N
*2 Only for 3031/31N

1.6. Interface Option Setting

This menu is enable when the interface optional card is installed in the printer.
For the installation of the interface option card, refer to Section 6: Serial Interface Option, page 6-36 in chapter 6.

SET ITEM	SELECTABLE VALUES	FACTORY SET VALUE	OVERVIEW
RS-232C	Enable Disable	Disable	Selects RS-232C interface option when the option card is setting in the printer.
Protcol (RS-232C)	DTR XON/XOFF	XON/XOFF	Selects DTR or Xon/Xoff protcol of RS 232C
Trans. Rate (RS-232C)	19200 9600 4800 2400 1200 600 300	9600	Selects Baud Rate of RS-232C
Data Length (RS-232C)	7 Bits 8 Bits	8 Bits	Selects the data length of RS-232C
Parity Bits (RS-232C)	No Parity Igrore Odd Even Mark Spc	No Parity	Selects the parity bits of RS-232C
Stop Bits (RS-232C)	1 Bit 2 Bits	1 Bit	Selects the Stop bits of RS-232C

2. Initial Setting Procedure

2.1. Menu Configuration

The three Initial Setting menus are listed below:

(1) Main Menu

This menu consists of 6 items:

- Character Setting
- Forms Handling Setting
- Data Control Setting
- Printer Control Setting
- Initial Set Value Printing
- Trace Mode

And When the Serial Interface Option is installed in the printer, the following item is added in this menu.

- Interface Option Setting

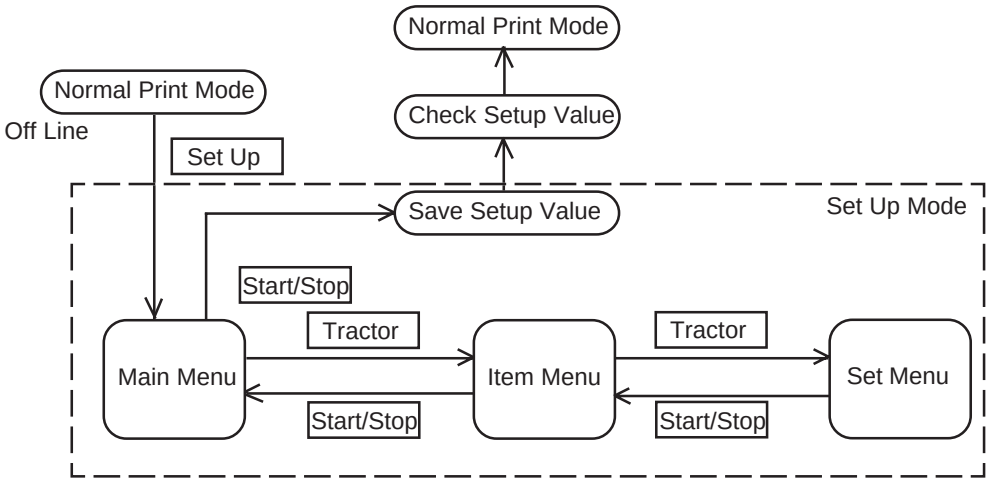
To access the Main Menu, press the [Set Up] key to enter Initial Set mode, or, press the [Tractor] key when the Item Menu is selected. When the [Start/Stop] key is pressed with the Main Menu selected, the settings are stored, then the Initial Diagnostic functions are performed, and finally the printer goes into the Normal Print Mode.

(2) Item Menu

This menu contains items relating to each item in the Main Menu. To access this menu, press the [Tractor] key with the Main Menu selected, or, press the [Start/Stop] key with the Set Menu selected.

(3) Set Menu

This menu contains options for each set item. To access the Set Menu, press the [Tractor] key with the Item Menu selected.

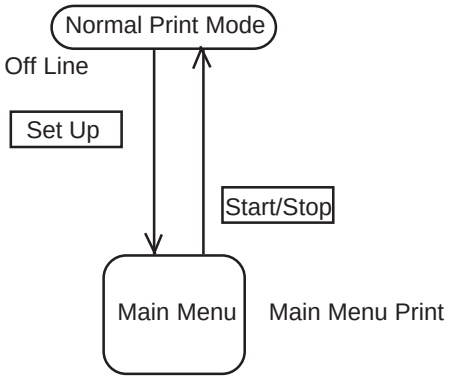


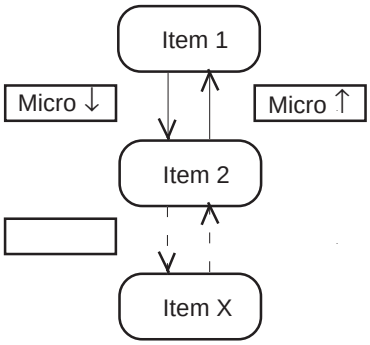
2.2. Setting Procedure

1) Load fanfold paper in the printer.
2) Press the [Start/Stop] key to switch the printer offline (with the Ready lamp off).
3) Open the Function Cover and press the [Set Up] key.
   (press the [Alt] key , then press the [Micro ↑] key)
   The printer starts the Initial Set Mode and prints the Main Menu.

   NOTE: Once the Initial Set mode has been started, any remaining data that has not been processed will be cleared.
4) Referring to the print results, press the [Micro ↑] or [Micro ↓] key to select the desired Main Menu items.
   The currently selected items are indicated by the seven item lamps.

   NOTE: If the [Start/Stop] key is pressed with the Main Menu selected, the Initial Set mode will end.



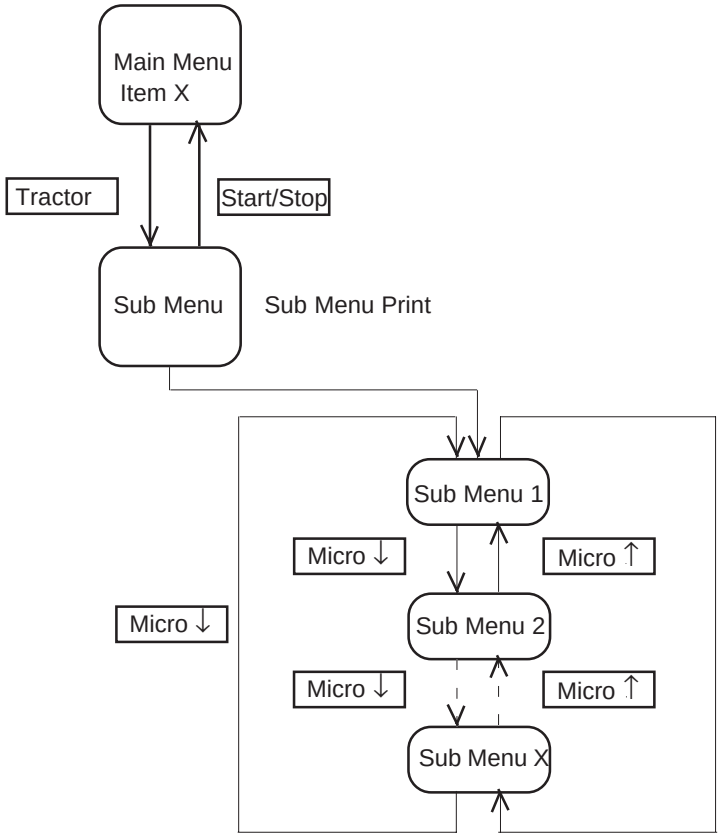


5) When the desired Main Menu item is selected, press the [Tractor] key.

6) The selected Sub Menu is printed.

7) Referring to the print results, use the [Micro ↑] or [Micro ↓] key to select the desired Sub Menu settings.
The items currently selected are indicated by the seven item lamps.

NOTE: When the Item Menu is selected, press the [Start/Stop] key to return to the Main Menu.

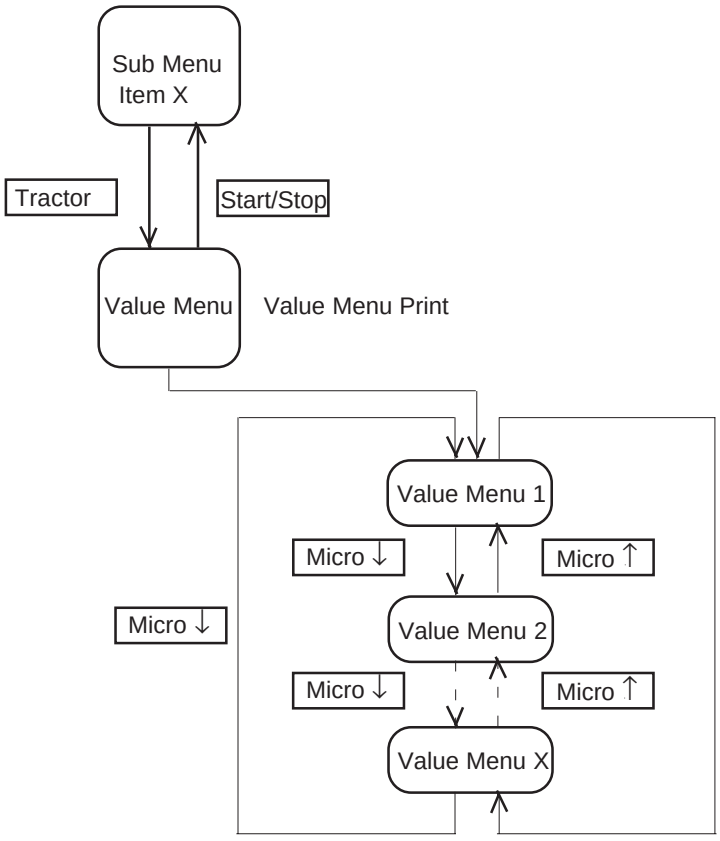


8) When the desired Item Menu option is selected, press the [Tractor] key.

9) The value set is printed.

10) Referring to the print results of the value set, use the [Micro ↑] or [Micro ↓] key to select the set sub menu items.
The items currently selected are indicated by the seven item lamps.

NOTE: When the Set Menu is selected, press the [Start/Stop] key to return to the Sub Menu.



11) When the desired Set Value Item selected, press the [Tractor] key. When the buzzer sounds, the selected item has been set, replacing the previous setting.

NOTE: If you do not want to change the previous setting, press the [Start/Stop] key.

12) After the new setting has been performed, the procedure returns to the Sub Menu and prints it out.

13) Press the [Start/Stop] key to return to the Main Menu and print it out.

NOTE: To continue changing other items, repeat the above steps.

14) Press the [Start/Stop] key to complete the Initial Set Mode. The changed settings are stored, the Initial Diagnostic functions are executed, and then the printer returns to the Normal Print Mode.

NOTE: The changed settings are retained even after the Power Switch has been turned OFF (O).

3. Example of How to Change the Initial Setting

To change the form length setting of user 1 in the Main Menu's Forms Setting from 11 inches to 9.5 inches.

1) Install fanfold paper in the printer.

2) Press the [Start/Stop] key to switch the printer offline (with the Ready lamp off).

3) Open the Function Cover, and press the [Set Up] key. The printer starts the Initial Set Mode and prints the Main Menu.

NOTE: Once the Initial Set mode is selected, any non-processed data will be cleared.

Print Results of the Main Menu for 3036/36N:

```
>Setup Main Menu

   Light        When          To Select
-----------  ------------  ----------------------------------------
10 Pitch     On            Character
                               Font/Pitch/Zro Slash

12 Pitch     On            Forms
                               Form Length/Line Length
                               Skip Pref/Cut Sheet Bottom/LPI

15 Pitch     On            Data Control
                               Eject by FF
                               Buffer/Auto LF/Auto CR

17 Pitch     On            Printer Control
                               Tear Off/Front Eject/Ready on DID
                               Uni-Dir Prnt/Paper Out Alarm
                               User Setting/Bi-Di Aligment

20 Pitch     On            Emulation
                               IBM      :AGM/Code Page/Char Set
                               EPSON    :Table Set/Int'l Char Set

24 Pitch     On            Print All Setting

PS Pitch     On            HEX DUMP

  MICRO UP/DOWN & PITCH KEY    : Select Light & Status
  TRACTOR KEY                  : Enter Sub Menu
  START/STOP KEY               : End
```

for 3031/31N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF/FF Enable Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :Code Page/Char Set Pro-III Mode/20 Pitch EPSON :Table Set/Int'l Char Set
PS Pitch	On	Print All Setting
10 Pitch	Blinking	HEX DUMP

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

4) Press the [Micro ↑] or [Micro ↓] key to select Forms Setting (Form Length). (The 12 Pitch lamp remains illuminated.)

5) With Forms Setting (Form Length) selected, press the [Tractor] key. The Sub Menu of theForms Setting is printed.

Sub Menu Print Results.

>>Forms

Light	When	To Select	Current Setting
(USER1)			
10 Pitch	On	Form Length	11"
12 Pitch	On	Line Length	13.6"
15 Pitch	On	Skip Perforation	0"
17 Pitch	On	Cut Sheet Bottom	0"
20 Pitch	On	LPI	6 Lines
(USER2)			
10 Pitch	On	Form Length	11"
12 Pitch	On	Line Length	13.6"
15 Pitch	On	Skip Perforation	0"
17 Pitch	On	Cut Sheet Bottom	0"
20 Pitch	On	LPI	6 Lines

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Value Menu
START/STOP KEY : End

6) Press the [Micro ↓] key to select Form Length of User1. (The 12 Pitch lamp remains lit.)

7) With Form Length selected, press the [Tractor] key. The Form Length Value Menu is printed.

Value Menu Print Results

```
>>>Page Length
        Current Set Value       11 inch

        MICRO UP                +1/6 inch
        MICRO DOWN              -1/6 inch
        ALT                     +1 inch
        PITCH                   -1 inch

TRACTOR KEY             : Save
START/STOP KEY          : Quit
```

8) Press the [Pitch] key. The buzzer sounds to indicate that a setting has been changed. Approximately 1 second later, the following Value Menu is printed. At this time, "10 inch" is selected for the Form Length.

Value Menu Print Results

```
>>>Page Length
        Current Set Value       10 inch

        MICRO UP                +1/6 inch
        MICRO DOWN              -1/6 inch
        ALT                     +1 inch
        PITCH                   -1 inch

TRACTOR KEY             : Save
START/STOP KEY          : Quit
```

9) Press the [Micro ↓] key three times consecutively.
Every time the key is pressed, the buzzer sounds to indicate that the setting has been changed. Approximately 1 second later, the following value Menu is printed. At this time, "9.5 inch" is selected for the Form Length.

NOTE: The selected value is changed each time the key is pressed.

Value Menu Print Results

```
>>>Page Length
      Current Set Value        9 1/2 inch

      MICRO UP                 +1/6 inch
      MICRO DOWN               -1/6 inch
      ALT                      +1 inch
      PITCH                    -1 inch

TRACTOR KEY          : Save
START/STOP KEY       : Quit
```

10) Press the [Tractor] key. The Form Length of User1 is changed to be 9.5 inches, and the buzzer sounds to indicate that the setting has been changed.

11) After the change is complete, the Item Menu is restored and the following Item Menu is printed.

Sub Menu Print Results.

>>Forms

Light	When	To Select	Current Setting
(USER1)			
10 Pitch	On	Form Length	11"
12 Pitch	On	Line Length	13.6"
15 Pitch	On	Skip Perforation	0"
17 Pitch	On	Cut Sheet Bottom	0"
20 Pitch	On	LPI	6 Lines
(USER2)			
10 Pitch	On	Form Length	11"
12 Pitch	On	Line Length	13.6"
15 Pitch	On	Skip Perforation	0"
17 Pitch	On	Cut Sheet Bottom	0"
20 Pitch	On	LPI	6 Lines

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Value Menu
START/STOP KEY : End

12) Press the [Start/Stop] key. The Main Menu is restored and then printed.

Print Results of the Main Menu for 3036/36N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :AGM/Code Page/Char Set EPSON :Table Set/Int'l Char Set
24 Pitch	On	Print All Setting
PS Pitch	On	HEX DUMP

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

for 3031/31N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF/FF Enable Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :Code Page/Char Set Pro-III Mode/20 Pitch EPSON :Table Set/Int'l Char Set
PS Pitch	On	Print All Setting
10 Pitch	Blinking	HEX DUMP

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

13) Press the [Start/Stop] key to complete the Initial Setting mode. The changed settings are stored, the Initial Diagnostic functions are executed, and then the printer returns to Normal Print mode.

4. Bi-Direction Alignment

In the Initial Setting mode, there is a function to adjust the gap between the respective ruled lines (vertical lines) by the left-to-right print and the right-to-left print in case of bi-directional printing.
To enter Bi-Direction Alignment mode, select Bi-Direction Alignment in the Main Menu's Printer Control Setting.
The following shows the Bi-Direction Alignment setting procedure:

1) Install fanfold paper.
2) Press the [Start/Stop] key to switch the printer offline (with the Ready lamp off).
3) Open the Function Cover, and press the [Set Up] key. The printer starts the Initial Setting mode and prints the Main Menu.
   NOTE: Once the Initial Set mode is selected, any non-processed data will be cleared.

Print Results of the Main Menu

for 3036/36N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :AGM/Code Page/Char Set EPSON :Table Set/Int'l Char Set
24 Pitch	On	Print All Setting
PS Pitch	On	HEX DUMP

MICRO UP/DOWN & PITCH KEY: Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

for 3031/31N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF/FF Enable Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :Code Page/Char Set Pro-III Mode/20 Pitch EPSON :Table Set/Int'l Char Set
PS Pitch	On	Print All Setting
10 Pitch	Blinking	HEX DUMP

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

4) Press the [Micro ↓] key to select Printer Control Setting (Bi-Di Alignment). (The 17 Pitch lamp is lit.)

5) With Print Control Setting (Bi-Di Alignment) selected, press the [Tractor] key. The Printer Contarol Setting Sub Menu is printed.

Sub Menu Print Results.
for 3036/36N:

```
>>Printer Control

   Light        When       To Select             Current Setting
-----------  ----------  ---------------------  --------------------------
10 Pitch        On       Auto Tear Off          Manual
12 Pitch        On       Front Eject            DID   : Off
                                                ASF   : Off
15 Pitch        On       Ready on DID           Enable
17 Pitch        On       Uni-Dir Print          On
20 Pitch        On       Paper Out Alarm        Enable
24 Pitch        On       User Setting           Disable
PS Pitch        On       Bi-Di Alignment

MICRO UP/DOWN & PITCH KEY      : Select Light & Status
TRACTOR KEY                    : Enter Value Menu
START/STOP KEY                 : End
```

for 3031/31N:

```
>>Printer Control

   Light        When       To Select             Current Setting
-----------  ----------  ---------------------  --------------------------
10 Pitch        On       Auto Tear Off          Manual
12 Pitch        On       Front Eject            DID   : Off
                                                ASF   : Off
15 Pitch        On       Ready on DID           Enable
17 Pitch        On       Uni-Dir Print          On
20 Pitch        On       Paper Out Alarm        Enable
PS Pitch        On       User Setting           Disable
10 Pitch        Blinking Bi-Di Alignment

MICRO UP/DOWN & PITCH KEY      : Select Light & Status
TRACTOR KEY                    : Enter Value Menu
START/STOP KEY                 : End
```

6) Press the [Micro ↑] key to select Bi-Di Alignment. (3036/36N: PS Pitch lamp On, 3031/31N: 10 Pitch lamp Blinking)

7) With Bi-Di Alignment selected, press the [Tractor] key. The Bi-Di Alignment Value Menu is printed.

Print Results of the Value Menu
for T405:

```
>>>>Bi-Di Alignment

    Current Adjust Value = XXX

    Light          When         To Select
-----------    ------------    ----------------------
10 Pitch       On              +1
12 Pitch       On              +2
15 Pitch       On              +3
17 Pitch       On              +4
20 Pitch       On              +5
24 Pitch       On              +6
10 Pitch       Blinking        -1
12 Pitch       Blinking        -2
15 Pitch       Blinking        -3
17 Pitch       Blinking        -4
20 Pitch       Blinking        -5
24 Pitch       Blinking        -6

MICRO UP/DOWN & PITCH KEY      : Select Light & Status
TRACTOR KEY                    : Save
START/STOP KEY                 : Quit

 *   -6  -5  -4  -3  -2  -1   0  +1  +2  +3  +4  +5  +6  *
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
```

for 3031/31N:

```
>>>>Bi-Di Alignment

      Current Adjust Value = XXX
       Light          When         To Select
  -----------     ------------     ----------------------
  10 Pitch        On               +1
  12 Pitch        On               +2
  15 Pitch        On               +3
  17 Pitch        On               +4
  20 Pitch        On               +5
  PS Pitch        On               +6
  10 Pitch        Blinking         -1
  12 Pitch        Blinking         -2
  15 Pitch        Blinking         -3
  17 Pitch        Blinking         -4
  20 Pitch        Blinking         -5
  PS Pitch        Blinking         -6

  MICRO UP/DOWN & PITCH KEY      : Select Light & Status
  TRACTOR KEY                    : Save
  START/STOP KEY                 : Quit

  *   -6  -5  -4  -3  -2  -1   0  +1  +2  +3  +4  +5  +6  *
  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
```

"0" indicates the currently set value (xxx).

8) Press the [Micro ↑] or [Micro ↓] key to select the set of four vertical lines that shows the straightest vertical line between those printed below the Value Menu.
(The Pitch lamp should be lit or blinking.)
If an item on the + side is selected, the vertical lines on the 2nd and 4th rows move to the left of the vertical lines on the 1st and 3rd rows. If an item on the - side is selected the vertical lines on the 2nd and 4th rows move to the right of the vertical lines on the 1st and 3rd rows.

9) Press the [Tractor] key. The current choice is selected, and the vertical lines are printed again.

10) If the change is satisfactory, press the [Start/Stop] key.
The buzzer sounds to indicate that the setting has been changed, and the Printer Control Setting Sub Menu is restored.

NOTE: If further adjustment is necessary, repeat the above procedure.

11) Press the [Start/Stop] key. The Main Menu is restored, and then printed.

12) Press the [Start/Stop] key to complete the Initial Setting mode.
The changed settings are stored, the Initial Diagnostic functions are executed, and then the printer returns to Normal Print mode.

5. Print All Settings

In this mode, a list of all the current settings may be printed out.
The Initial Set Value Printout is started by selecting Print All Settings (24 Pitch lamp On) in the Initial Value Setting Main Menu. After printing is complete, the Main Menu is restored.

Print All Settings

>>Character

Sub-Menu	Setting User1	User2
Font	Draft	Draft
Pitch	10	10
Zero Slash	Disable	Disable

>>Froms

Sub-Menu	Setting User1	User2
Form Length	11"	11"
Line Length	13.6"	13.6"
Skip Perforation	0"	0"
Cut Sheet Bottom	0"	0"
LPI	6 Line	6 Line

>>Data Contorl

Sub-Menu	Setting User1	User2
Eject by FF	On	On
Buffer	32KB	<<<
Auto LF	Off	<<<
Auto CR	Off	<<<

>>>Printer Control

Sub-Menu	Setting
Tear Off	Manual
Front Eject	DID : Off ASF : Off
Ready on DID	Disable
Uni-Dir Print	Off
Paper Out Alarm	Enable
User Setting	Disable

>>>Emulation

Sub-Menu	Setting
Emulation	ESC/P
AGM(IBM)	Disable
Code Page (IBM)	437
Char Set (IBM)	Set1
Table Set(ESC/P)	Graphics
Int'l Char Set(ESC/P)	USA

6. Hex Dump Mode

In this mode, the data sent from the System Unit to the printer can be printed out with the corresponding hexadecimal code.
The Hex Dump mode is started by selecting Hex Dump (PS Pitch lamp On) in the Initial Value Setting Main Menu. This mode will be active until the Power Switch is turned OFF "O."

NOTE: In the Trace Mode, data will be printed as soon as 1 line is ready. When the receiving data is less than 1 line, it will be printed in Time-out Print.

Chapter 5. Troubleshooting

This chapter explains possible causes of printer errors and their remedies according to their locations: errors may occur in the printer itself, hardware options, and application software. First, attempt to find out the cause of the error , and when the problem cannot be solved, please contact the store where the product was purchased.

1. Check List

(1) The following list shows some common printer problems you may encounter. If you find the case matching your problem, turn to the applicable page for advice.

- No response when turning ON the power — Case 1 — Page 5-1
- Lamps indicate problem — Case 2 — Page 5-2
- Paper feeding problem — Case 3 — Page 5-6
- Fails to print, or printing is incomplete. — Case 4 — Page 5-7
- Abnormal noises — Case 5 — Page 5-8
- ASF problem — Case 6 — Page 5-9
- The Optional Tractor problem — Case 7 — Page 5-10

(2) If your problem cannot be solved, turn the printer Power Switch OFF ("O"), disconnect the power cord, and contact the store where the product was purchased.

Case 1. No response when turning ON the power

PRINTER BEHAVIOR	CAUSE AND REMEDIES
The POWER lamp does not illuminate, and there is no printer response.	• The plug of the power cord is loose or detached from the wall outlet. - Be certain to firmly connect the power cord to the printer and to the wall outlet. • The wall outlet is faulty. - Check by connecting other electric appliances to the wall outlet.

Case 2. Error Indication of the lamps

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Lamp / Status PowerOn ReadyOn PaperOut On Alt On Lock On User1 On User2 On Others On	• Initial Diagnostic Test Error - If this status is held for more than 10 seconds, turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, contact the store where the product was purchased.
Lamp / Status PowerOn ReadyOff PaperOut Blinks Alt Off Lock Off User1 Blinks User2 Off Others Off	• ROM/RAM Error - Turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.
Lamp / Status PowerOn ReadyOff PaperOut Blinks Alt Off Lock Blinks User1 Blinks User2 Blinks Others Off	• Operation Panel Switch Error - There is a problem with the Operation Panel switches. Turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.
Lamp / Status PowerOn Ready Off paperOut Blinks Alt Off Lock Blinks User1 Off User2 Off Others Off	• NVRAM Error - Turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.

PHENOMENON	CAUSE AND REMEDIES
<table><tr><th>Lamp</th><th>Status</th></tr><tr><td>PowerOn</td><td></td></tr><tr><td>ReadyOff</td><td></td></tr><tr><td>PaperOut</td><td>Blinks</td></tr><tr><td>Alt</td><td>Off</td></tr><tr><td>Lock</td><td>Blinks</td></tr><tr><td>User1</td><td>Off</td></tr><tr><td>User2</td><td>Blinks</td></tr><tr><td>Others</td><td>Off</td></tr></table>	• Home Position Error - Turn the Power Switch OFF ("O"), and then check for paper dust or foreign objects inside the printer. - Then turn the printer ON ("|") again. If the problem persists, please contact the store where the product was purchased.
<table><tr><th>Lamp</th><th>Status</th></tr><tr><td>PowerOn</td><td></td></tr><tr><td>Ready</td><td>Blinks</td></tr><tr><td>PaperOut</td><td>Blinks</td></tr><tr><td>Alt</td><td>Any</td></tr><tr><td>Lock</td><td>Any</td></tr><tr><td>User1</td><td>Any</td></tr><tr><td>User2</td><td>Any</td></tr><tr><td>Others</td><td>Off</td></tr></table>	• Control Card Error - Turn the Power Switch OFF ("O") and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.
<table><tr><th>Lamp</th><th>Status</th></tr><tr><td>PowerOn</td><td></td></tr><tr><td>ReadyOff</td><td></td></tr><tr><td>PaperOut</td><td>Blinks</td></tr><tr><td>Alt</td><td>Blinks</td></tr><tr><td>Lock</td><td>Blinks</td></tr><tr><td>User1</td><td>Off</td></tr><tr><td>User2</td><td>Off</td></tr><tr><td>Others</td><td>Off</td></tr></table>	• Drive Voltage Error - Turn the Power Switch OFF ("O") and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.
<table><tr><th>Lamp</th><th>Status</th></tr><tr><td>PowerOff</td><td></td></tr><tr><td>Ready</td><td>Off</td></tr><tr><td>paperOut</td><td>Off</td></tr><tr><td>Alt</td><td>Off</td></tr><tr><td>Lock</td><td>Off</td></tr><tr><td>User1</td><td>Off</td></tr><tr><td>User2</td><td>Off</td></tr><tr><td>Others</td><td>Off</td></tr></table>	• Operation Panel Error - Turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.

<table>
<tr><th>PRINTER BEHAVIOR</th><th>CAUSE AND REMEDIES</th></tr>
<tr><td>
<table>
<tr><th>Lamp</th><th>Status</th></tr>
<tr><td>Power</td><td>On</td></tr>
<tr><td>Ready</td><td>Off</td></tr>
<tr><td>PaperOut</td><td>Blinks</td></tr>
<tr><td>Alt</td><td>Off</td></tr>
<tr><td>Lock</td><td>Blinks</td></tr>
<tr><td>User1</td><td>Blinks</td></tr>
<tr><td>User2</td><td>Off</td></tr>
<tr><td>Others</td><td>Off</td></tr>
</table>
</td><td>• Font ROM Error
- Turn the Power Switch OFF ("O"), and then ON ("|") again.
If the problem persists, please contact the store where the product was purchased.</td></tr>
<tr><td>
<table>
<tr><th>Lamp</th><th>Status</th></tr>
<tr><td>Power</td><td>On</td></tr>
<tr><td>Ready</td><td>Off</td></tr>
<tr><td>PaperOut</td><td>Blinks</td></tr>
<tr><td>Alt</td><td>Off</td></tr>
<tr><td>Lock</td><td>Any</td></tr>
<tr><td>User1</td><td>Any</td></tr>
<tr><td>User2</td><td>Any</td></tr>
<tr><td>Others</td><td>Any</td></tr>
</table>
</td><td>One of the following errors has occurred:
• Paper Mode Alternation Error
- This error occurs, when the Paper Select Lever position does not match the loaded paper.
Set the Paper Select Lever according to the paper to be used, then press the [Start/Stop] switch.
• Cut Sheet Feed-in/out Error
- This error occurs if paper cannot be loaded or fed out in the Cut Sheet Paper Mode or when the ASF is used. Remove the paper from inside the printer, and press the [Start/Stop] switch.
If problems persist, please contact the store where the product was purchased.</td></tr>
<tr><td>
<table>
<tr><th>Lamp</th><th>Status</th></tr>
<tr><td>Power</td><td>On</td></tr>
<tr><td>Ready</td><td>Off</td></tr>
<tr><td>PaperOut</td><td>Blinks</td></tr>
<tr><td>Alt</td><td>Blinks</td></tr>
<tr><td>Lock</td><td>Blinks</td></tr>
<tr><td>User1</td><td>Off</td></tr>
<tr><td>User2</td><td>Blinks</td></tr>
<tr><td>Others</td><td>Off</td></tr>
</table>
</td><td>• Print Head Thermal Error
- Turn the Power Switch OFF ("O"), and then ON ("|") position again.
If the problem persists, please contact the store where the product was purchased.</td></tr>
</table>

PRINTER BEHAVIOR	CAUSE AND REMEDIES
<table><tr><th>Lamp</th><th>Status</th></tr><tr><td>PowerOn</td><td></td></tr><tr><td>Ready</td><td>Off</td></tr><tr><td>paperOut</td><td>Blinks</td></tr><tr><td>Alt</td><td>Blinks</td></tr><tr><td>Lock</td><td>Off</td></tr><tr><td>User1</td><td>Blinks</td></tr><tr><td>User2</td><td>Blinks</td></tr><tr><td>Others</td><td>Off</td></tr></table>	• Option Tractor Error - Turn the Power Switch OFF ("O"), and then ON ("|") again. If the problem persists, please contact the store where the product was purchased.

Case 3. Paper feeding problems

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Paper does not feed. Paper tears. Paper gets stuck.	• The Paper Select Lever position is not correct. - To use cut sheets, push the Paper Select Lever to the upper position. To use fanfold paper, push the lever to the lower position. • The feeding holes on the left or right side of the fanfold paper are not fit properly over the tractor pins. - Fit the holes over the tractor pins, and remove any slack. • The sprocket covers of the Tractor are open, or the Fixing Lever is not locked. - Close the Sprocket covers. Lock the Tractor with the Fixing Lever. • The paper does not correspond to the specifications. - Use paper that conforms to the specifications See Chapter 7: About Paper, page 7-1. • Paper is jammed. - Remove the jammed paper. To remove it, see Section 2: Removing Jammed Paper, page 5-11 in this chapter. • The Paper Thickness Adjustment Lever position does not match the thickness of the paper being used. - Set the Paper Thickness Lever to match the thickness of the paper being used. This is especially important when thick paper or a multi-sheet form is used.

Case 4. Fails to print, or printing is incomplete

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Fails to Print.	• The Ready lamp is off. - Press the [Start/Stop] switch. • The Printer Cable is disconnected or loose. - Be sure to firmly connect the Printer Cable. • An incompatible Printer Cable is being used. - Use an appropriate Printer Cable. See Chapter 6, Section 2: Hardware Options, page 6-2. • The wrong Emulation is used. - Ensure that the proper command is sent from the system unit.
No printout appears, or printout is patchy.	• The Ink-ribbon Cartridge is not installed. - Install an Ink-ribbon Cartridge. • The Ink-ribbon is too old or dry. - Replace the Ink-ribbon. • The Paper Thickness Adjust Lever does not match the thickness of the paper being used. - Adjust the lever position.
Printout is incomplete.	• The Ink-ribbon Cartridge is not installed correctly. - Check the installation. • The Ink-ribbon is twisted. - Replace the Ink-ribbon Cartridge. • The Ink-ribbon is not fed correctly. - Replace the Ink-ribbon Cartridge. • The Paper Thickness Adjust Lever position does not match the thickness of the paper being used. - Adjust the lever position.
The print data rows are slanted. The line pitch is not constant.	• The paper is not loaded correctly. - Install the paper correctly. • The Paper Select Lever position is not correct. - To use cut sheet paper, push the Paper Select Lever to the upper position. To use continuous paper, push the lever to the lower position. • The Paper Thickness Adjust Lever does not match the thickness of the paper being used. - Adjust the lever position.

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Wrong print start position of the left-to-right or right-to-left direction.	• The paper position is not set correctly. - The "[A" mark indicates the standard print start position. Match the left margin of the paper, to this mark. • The paper has is not straight. - Reinstall the paper. • The paper does not correspond to the specifications. - Use paper that conforms to the given specifications See Chapter 7: About Paper, page 7-1.
Irregular printing actions are performed. Extra dots are printed. Undesired characters are printed.	• The Printer Cable is not firmly connected. - Be sure to firmly connect the Printer Cable. • The control command is incorrect. - Ensure that the proper command is sent from the system unit. • The printer is affected by external electric noises. - The noises may come from static electricity, electric lamp circuits, or strong electric waves. Please contact the store where the product was purchased.
The print speed becomes slow. The print head stops between lines.	• The print head protective function has not been activated. - When the print head becomes hot, this protective function is activated. Once the print head temperature decreases to normal limits, the protec tive function is deactivated.

Case 5. Abnormal noises

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Abnormal noises are generated.	• The surface where the printer is placed is not flat. - Place the printer on a flat and stable surface. • The Ink-ribbon Cartridge is not installed correctly. - Ensure correct installation. • The knob is restrained. - Remove any object touching the knob. • Foreign objects are inside the printer. - Remove any foreign objects from inside the printer. • Paper is jammed. - Remove the jammed paper. To remove it, refer to Section 2: Removing Jammed Paper, page 5-11 in this chapter.

Case 6. ASF problems

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Paper does not feed.	• The Paper Select Lever position is not correct. - When the ASF is used, push up the lever to the Cut Sheet Paper Mode. • The ASF is not attached correctly. - Turn the printer Power Switch OFF ("O"), and reattach the ASF. Then, turn the printer Power Switch ON (" | ") and check that the paper feeds correctly. • The quantity of paper in the input bin is too large. - Ensure that the paper level does not exceed the line on the right side of the bin guide. • The ASF Paper Set Lever position is incorrect. - In Auto Feed Mode, set the Paper Set Lever to the rear position. In Manual Feed Mode, set it to the front position.
Paper jams.	• The paper exceeds specifications. - Use paper according to the specifications of the printer. Refer to Chapter 7: About Paper, page 7-1. • Paper is not installed correctly. - Remove the paper and fan thoroughly to make sure the sheets are not sticking together. Then, insert the paper in the printer. • The quantity of the installed paper is too large. - Do not exceed the line on the right of the bin guide. • The Gap Set Lever position does not match the thick ness of the paper being used. - Adjust the lever according to the thickness of the paper. This is especially important when using thick paper or a multi-sheet form.

Case 7. Optional Tractor problems

PRINTER BEHAVIOR	CAUSE AND REMEDIES
Paper does not feed.	• The Optional Tractor is not set on the Operation Panel. - Set the Optional Tractor on the Operation Panel. See Chapter 2: Operation Panel, page 2-4. • The Paper Select Lever position is incorrect. - To use cut sheet paper, push the lever up. To use Fanfold paper, push the lever down. • The Optional Tractor is not attached correctly. - Turn the printer Power Switch OFF ("O"), and reinstall the Optional Tractor. Then turn the Power Switch ON (" | ") and press the [Park/Load] key to check if paper feeds correctly.
Paper gets jammed.	• The paper does not correspond to the specifications. - Use paper according to the specifications of the printer. See Chapter 7: About Paper, page 7-1. • The Optional Tractor Manual Insert Guide is not closed completely. - Close it until it clicks. • The holes on the left and right sides of the continuous paper are not fit properly over the tractor pins. - Fit the holes over the tractor pins, and remove any slack. • The Sprocket covers of a Tractor are open, or the Fixing Lever is not locked. - Close the Sprocket covers and lock the Tractor with the Fixing Lever.
Paper feeds unevenly.	• The Gap Set Lever position does not match the thickness of the paper. - Adjust the lever position to match the paper thickness. • The Optional Tractor is not attached correctly. - Turn the printer Power Switch OFF ("O") and reinstall the tractor. Then turn the Power Switch ON (" | "), and press the [Park/Load] key to check if paper feeds evenly.

2. Removing Jammed Paper

2.1. Fanfold Paper

⚠ CAUTION	The print head may be hot. Please do not touch the metal part of the print head.

NOTE: When the ASF or the Optional Tractor is attached, remove if necessary. Proceed with the following steps with the printer placed on a flat and stable surface.

1) Turn the printer Power Switch OFF ("O").
2) Tear off the fanfold paper.
3) Open the Access Cover, and move the print head to the leftmost or rightmost position.
4) Open the Front Cover, open the Sprocket Covers on the left and right Tractors, and remove the paper.
5) Gently pull the fanfold paper to the front until all the paper is removed.
6) If any part comes out from the upper part of the printer, remove it.
7) Ensure that there are no torn paper parts remaining inside the printer, then close the Access Cover.
8) To check that the jammed paper has been removed, perform a print test. For the print test procedure see Chapter 1, Section 8: Test Print, page 1-13.

If the problem persists, check again for any paper remaining inside the printer.
If the print test fails again, refer to Section 1: Check List, page 5-1 in this chapter.

2.2. Cut Sheet Paper

⚠ CAUTION	The print head may be hot. Please do not touch the metal part of the print head.

NOTE: When the ASF or Optional Tractor is installed, remove if necessary. Proceed with the following steps with the printer placed on a flat and stable surface.

1) Turn the printer Power Switch OFF("O").
2) Open the Access Cover, and move the print head to the leftmost or rightmost position.
3) If the paper comes out of the upper sied of the printer, pull it out while turning the Knob to remove it.
4) Ensure that there are no torn paper parts remaining inside the printer, then close the Access Cover.
5) Turn the Power Switch ON (" | ").
6) Press the [Start/Stop] key and check that the Paper Out lamp is off and the Ready lamp is lit.
7) To check that the jammed paper has been removed, perform a print test. For the print test procedure, see Chapter 1, Section 8: Test Print, page 1-13.

If the problem persists, check again for any paper remaining inside the printer.
If the print test fails again, refer to Section 1: Check List, page 5-1 in this chapter.

Chapter 6. Consumables, Hardware Options, Maintenance

1. Consumables

Consumables for this printer are Ink-ribbon Cartridges.

1.1. Ink-ribbon Cartridge

For the ink-ribbon, special ink is used to protect the print head.
Use only Compuprint original consumables

1.1.1. Replacing the Ink-ribbon Cartridge

This section describes the Ink-ribbon Cartridge replacement procedure.

⚠ CAUTION	The print head may be hot. Please do not touch the metal part of the print head.

1) Turn the Power Switch OFF ("O").
2) Pull the Latch Levers at the left and right of the Access Cover forward, and remove the Access Cover.
3) Move the print head to the center of the carriage.
4) Hold both sides of the Ink-ribbon Cartridge, and lift up to detach it.
5) Remove a new Ink-ribbon Cartridge from its protective wrapping, and install it in the printer as described in Chapter 1, Section 5: Installing the Ink-ribbon Cartridge, page 1-6.

After replacing the Ink-ribbon Cartridge, check that it is operating normally by executing a print test. If the print test fails, check that the Ink-ribbon Cartridge has been installed correctly.

NOTE: When discarding used old Ink-ribbon Cartridges, they must be disposed as incombustible trash.

2. Hardware Options

The Printer Cable, Auto Sheet Feeder (ASF), 2nd Tractor and Serial I/F are hardware options for the printer.

2.1. Printer Cable

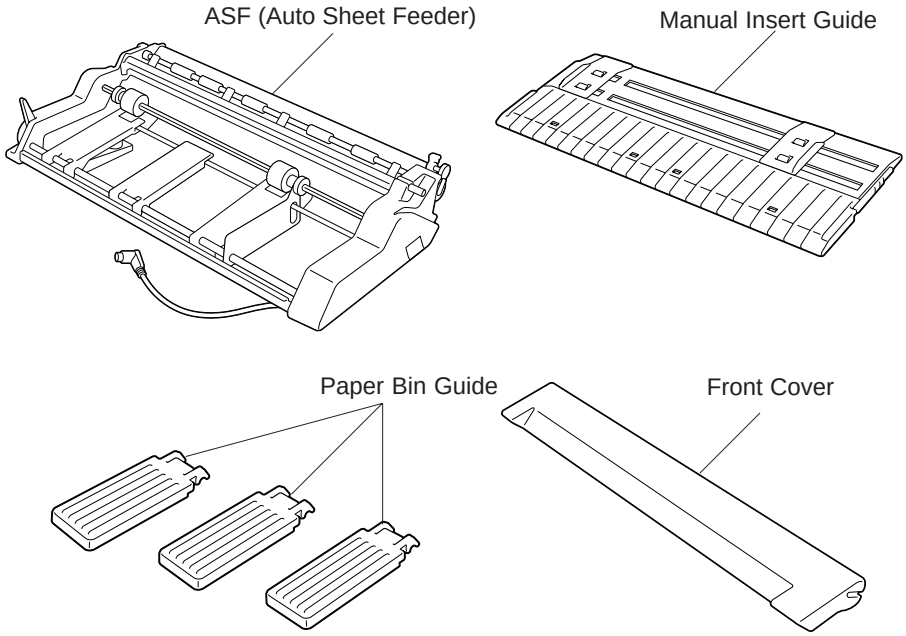
If a Printer Cable is needed, please order it from the store where the product was purchased.

2.2. Auto Sheet Feeder (ASF)

The ASF allows automatic feeding of cut sheets or postcards into the printer. Even with the ASF attached to the printer, you can still use fanfold paper or insert single cut sheets manually.
The print mode using the ASF is called the "Auto Feed Mode," and the print mode in which single cut sheets are inserted manually is called "Manual Insert Mode".
For further details on paper, see Chapter 7: About Paper, page 7-1.
If any problem arises when using the ASF, refer to Chapter 5: Troubleshooting, page 5-9.
If you need the ASF please order it to from the store where the product was purchased.

2.2.1. Checking the Accessories

1) Check that the following accessories are all included with the ASF unit.

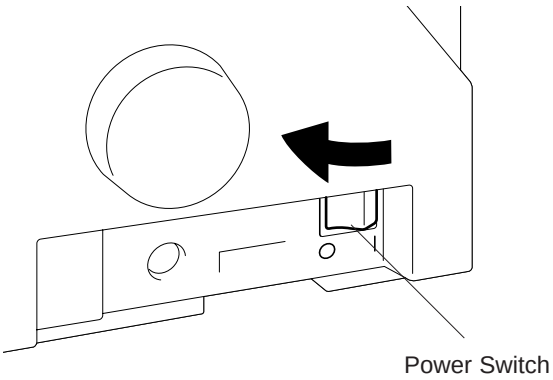


2) Should any item be damaged, please do not hesitate to contact the store where the product was purchased.

3) Please keep the carton and packing materials.
They will be necessary for moving or transporting the ASF unit.

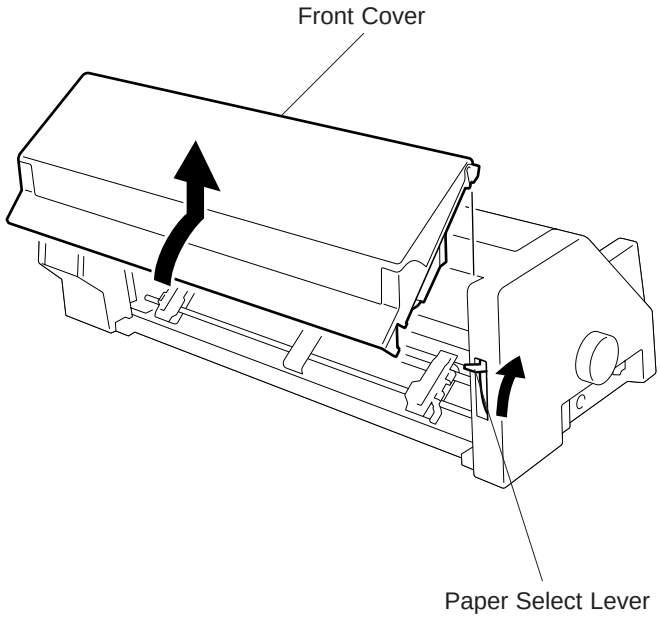
2.2.2. Installing the ASF

1) Turn the the printer Power Switch OFF ("O").

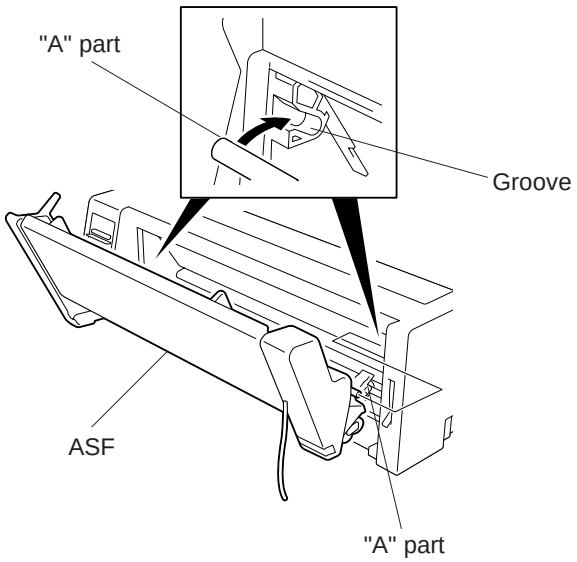


2) Open the Front Cover halfway and remove it.

3) Push up the Paper Select Lever to Cut Sheet Paper Mode.

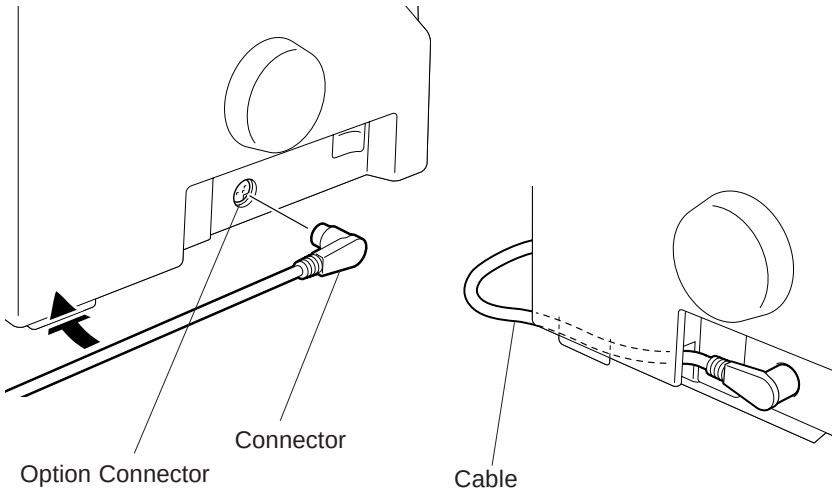


4) Match the "A" parts of the ASF unit with their respective grooves on both sides of the printer, and press them in. Then rotate the bottom of the ASF to secure it to the printer.

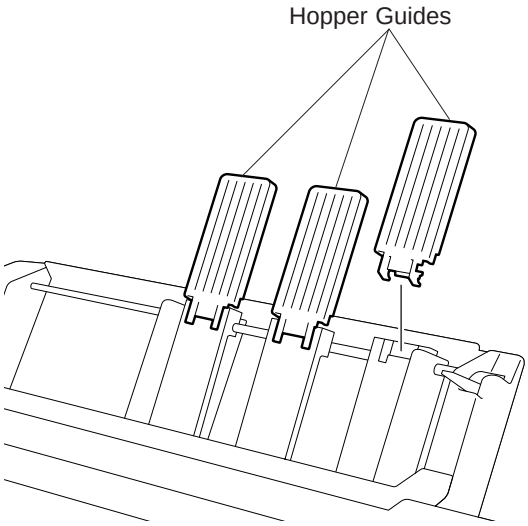


5) Connect the ASF connector to the printer Option Connector.

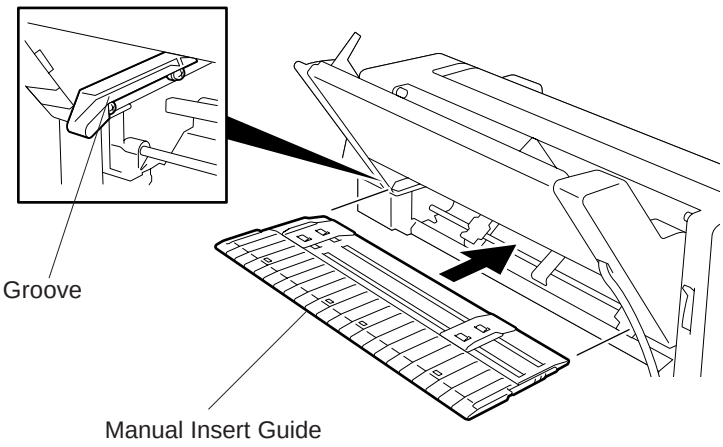
6) Secure the ASF cable as shown in the figure below.



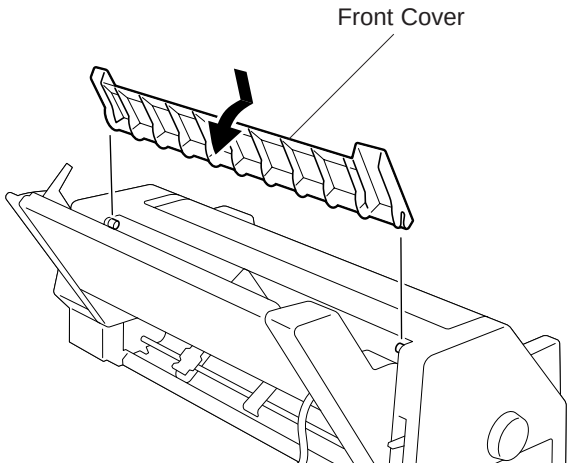
7) Attach the Paper Bin Guides to the ASF.



8) Insert the Manual Insert Guide along the grooves and push it in on both sides of the ASF until it locks.

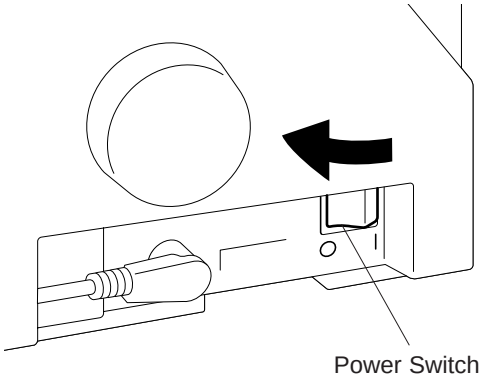


9) Install the Front Cover (which is included in the package as an accessory) onto the printer.

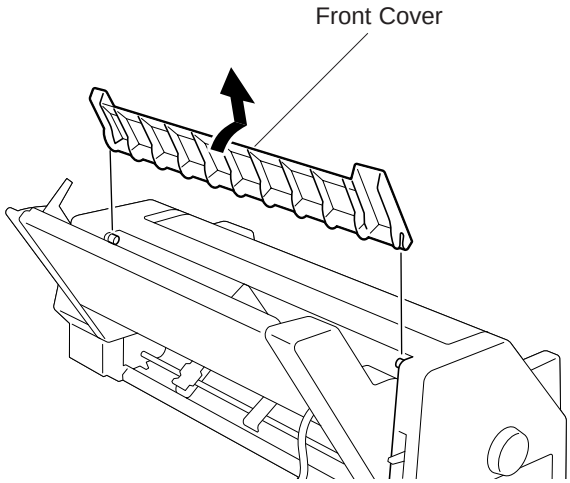


2.2.3. Removing the ASF

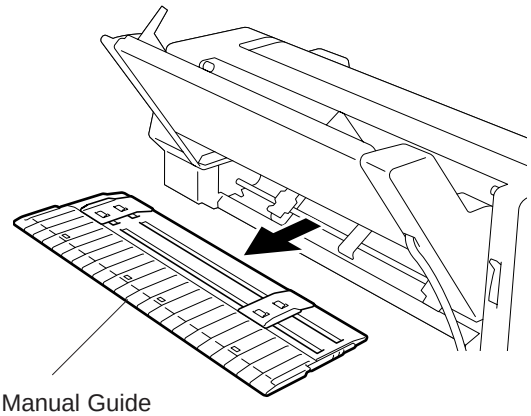
1) Turn the the printer Power Switch OFF ("O").



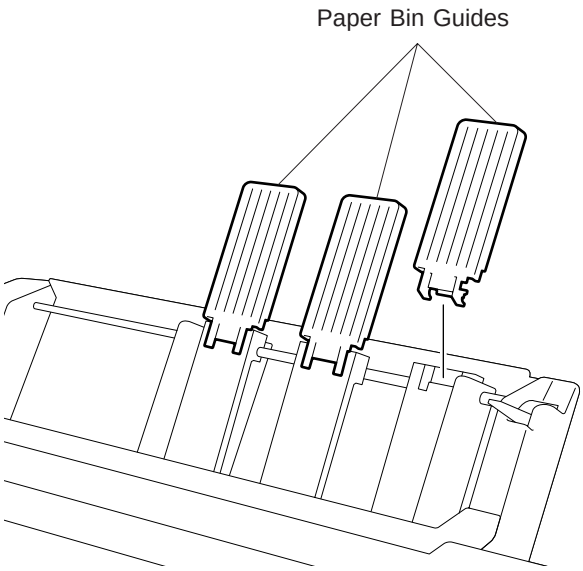
2) Open the Front Cover halfway, and remove it.



3) Pull the Manual Insert Guide towards the front of the printer to remove it.

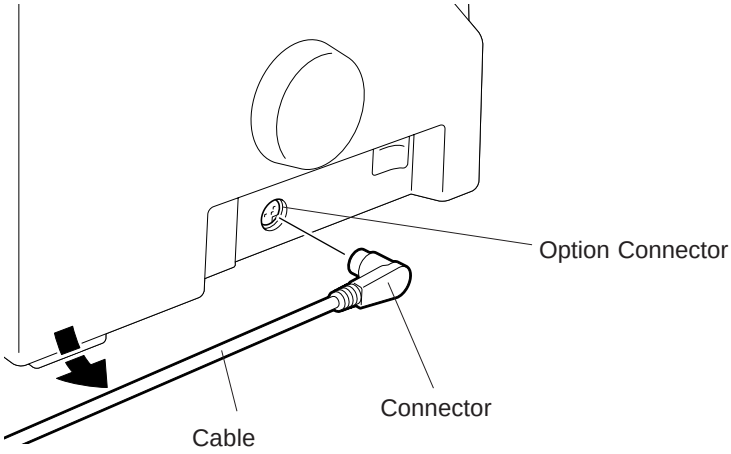


4) Remove the three Hopper Guides from the ASF.

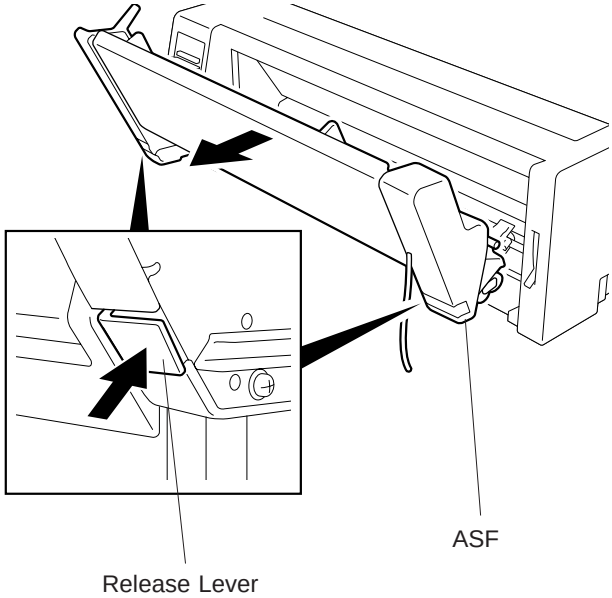


5) Unplug the ASF connector from the printer Option Connector.

6) Detach the ASF cable from the printer.

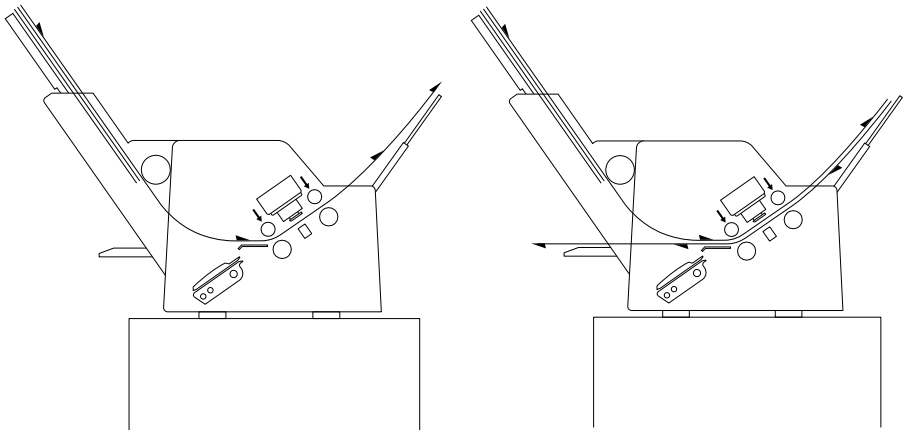


7) Hold down the Release Levers on both sides of the ASF, withdraw the bottom part of the ASF to detach it from the printer.



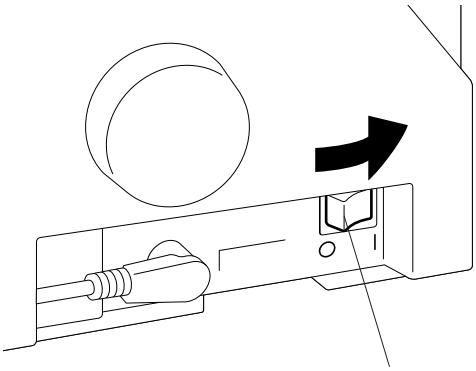
2.2.4. Cut Sheet Paper Handling in Auto Feed Mode

Cut sheet paper in Auto Feed Mode will automatically be loaded into the printer by the ASF. The printout sheets may be fed out to the rear or front, depending on the Initial Setting selection. Refer to Chapter 4: Initial Setting, page 4-3.



Rear Out Front Out

1) Turn the the printer Power Switch ON (" | ").



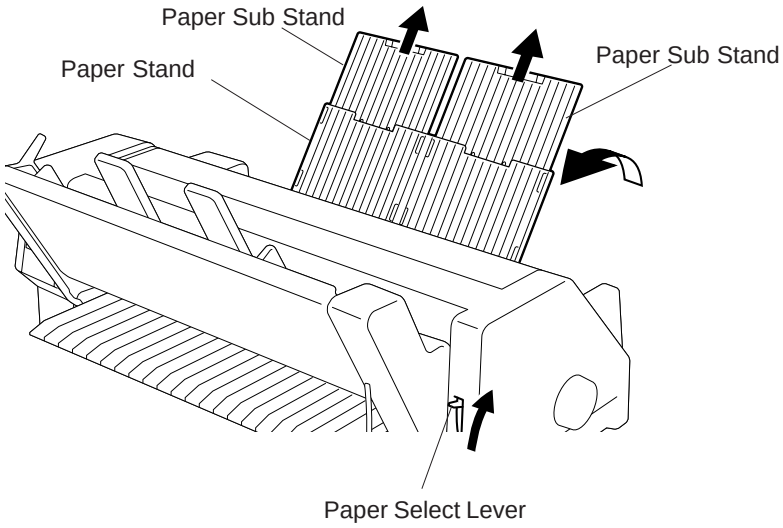
Power Switch

2) Adjust the Gap Set Lever according to the type of paper to be used. Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

3) Raise the Paper Stand up as shown in figure.

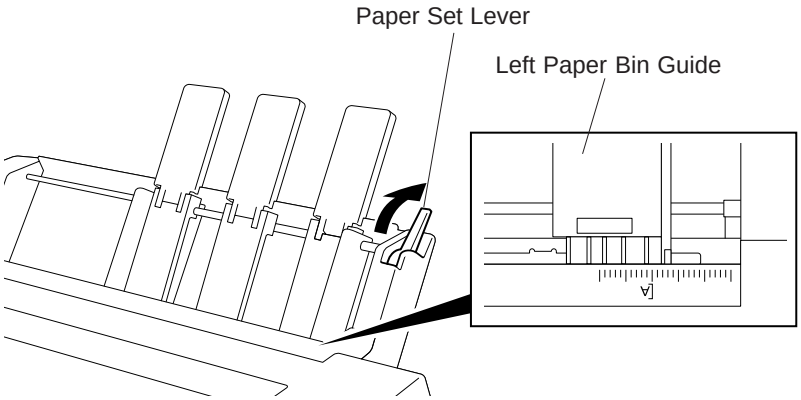
4) While holding the Paper Stand pull out the Paper Sub Stands.

5) Push up the Paper Select Lever to Cut Sheet Paper Mode.



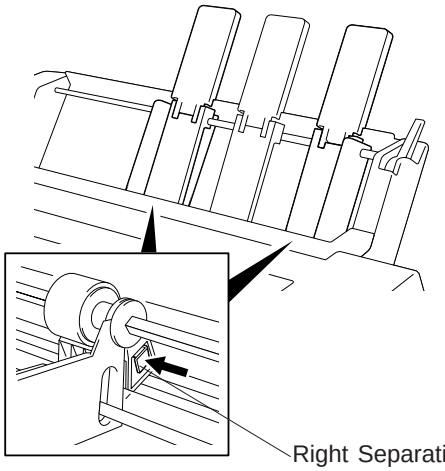
6) Turn the ASF Paper Set Lever in the direction indicated by the arrow.

7) To adjust the left margin, move the Left Bin Guide.
The "[A" mark indicates the standard print start position.



8) Push the Left and Right Separation Pad Levers in the direction indicated by the arrow (except for the left edge bound multi-sheet forms).

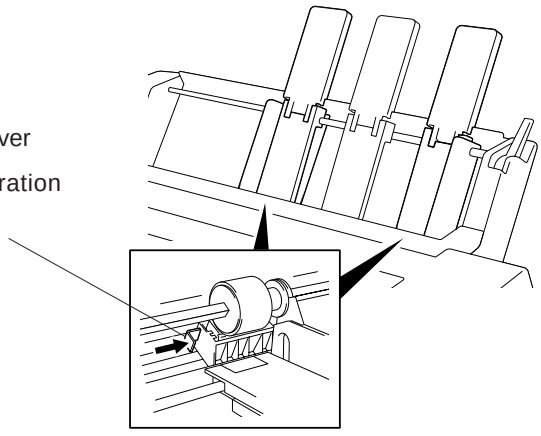
NOTE: Push these levers all the way in until they click twice. If these levers are not pushed in the direction indicated by the arrow, the paper may jam.



(Also push the Left Separation Pad Lever out)

9) When using a left edge bound multi-sheet form, push the Left and Right Separation Pad Levers in the direction indicated by the arrow.

NOTE: Push these levers in all way until they click twice. If a left edge bound multi-sheet form is used without pushing in the levers, the paper may jam.



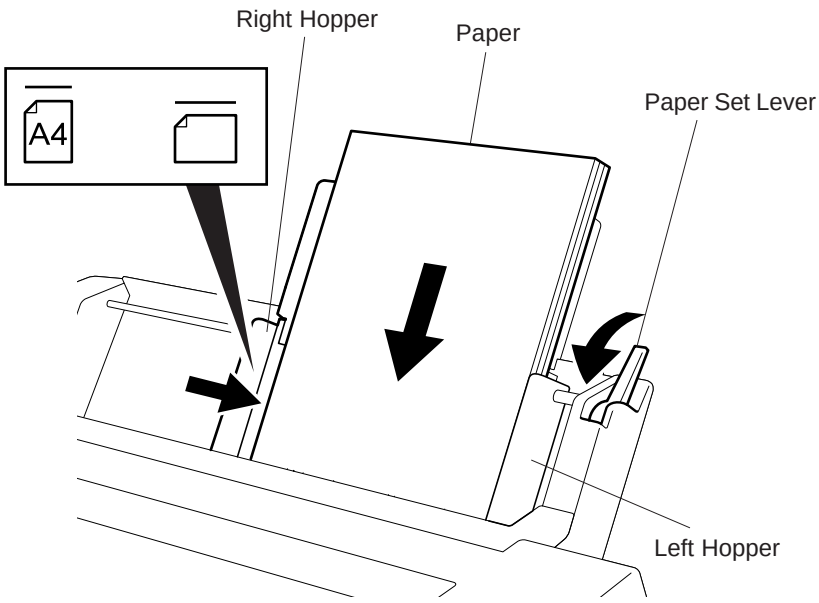
10) Insert cut sheet paper in the ASF aligning it to the Left Bin Guide.

NOTE: The paper should not exceed the mark inside the Right Bin Guide. As a standard for your reference, up to 150 sheets of 55Kg-paper in A4-size or smaller can be loaded, or up to 100 sheets if thicker or larger than A4 paper.

11) Align the Right Bin Guide to the right edge of the cut sheet paper.

12) Place the Paper Plate in the center between the Left and Right Paper Guides.

13) Turn the Paper Set Lever of the ASF up in the direction indicated by the arrow.

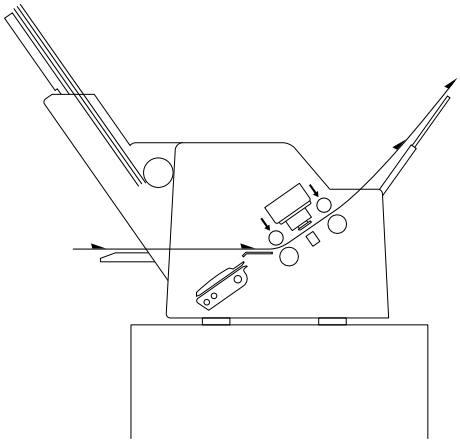


14) Press the [Start/Stop] key. The Ready lamp is illuminated and the printer is now ready for printing.

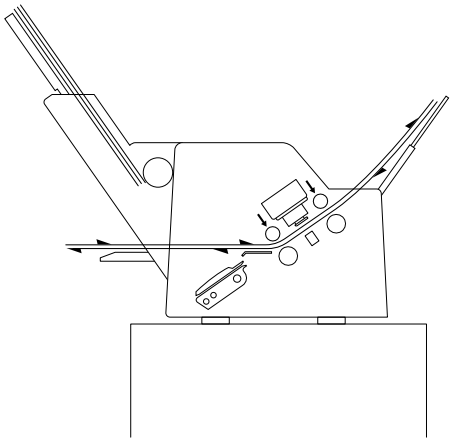
NOTE: The paper feed-out capacity is about 30 sheets for 55Kg-paper if the option "Feed-out to Rear" is ON. If the option "Feed-out to Front" is selected, you must remove sheets one by one.

2.2.5. Cut Sheet Paper Handling in Manual Feed Mode

Cut sheet paper in Manual Feed Mode must be inserted through the opening near the bottom of the ASF. The printout may be fed out to the front or rear of the printer in the Initial Setting selection. Refer to Chapter 4: Initial Setting, page 4-3.

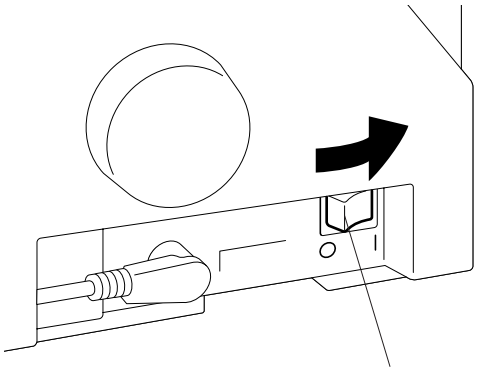


Rear Out



Front Out

1) Turn the printer Power Switch of the printer ON (" | ").



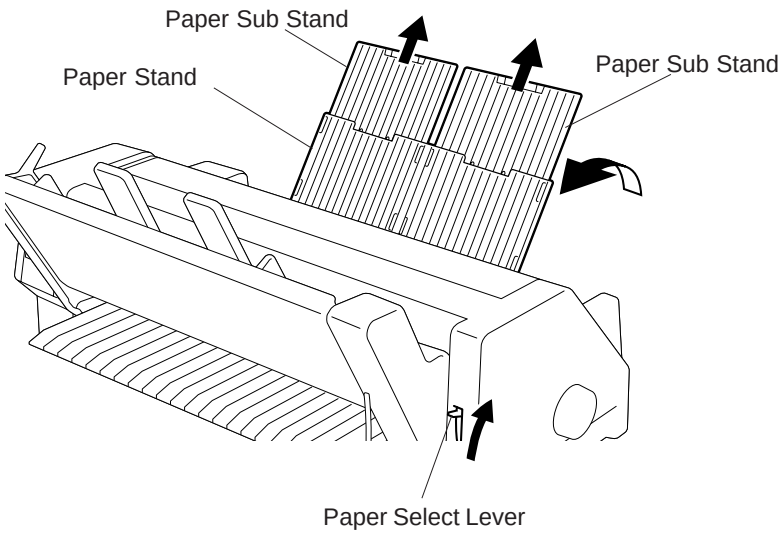
Power Switch

2) Adjust the Gap Set Lever according to the type of paper to be used. Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

3) Raise the Paper Stand as shown in figure.

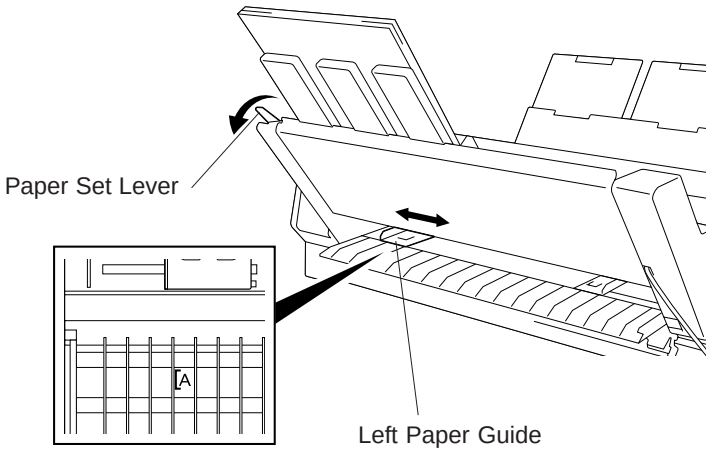
4) Hold the Paper Stand, while pulling out the Paper Sub Stands.

5) Push the Paper Select Lever up to Cut Sheet Paper Mode.

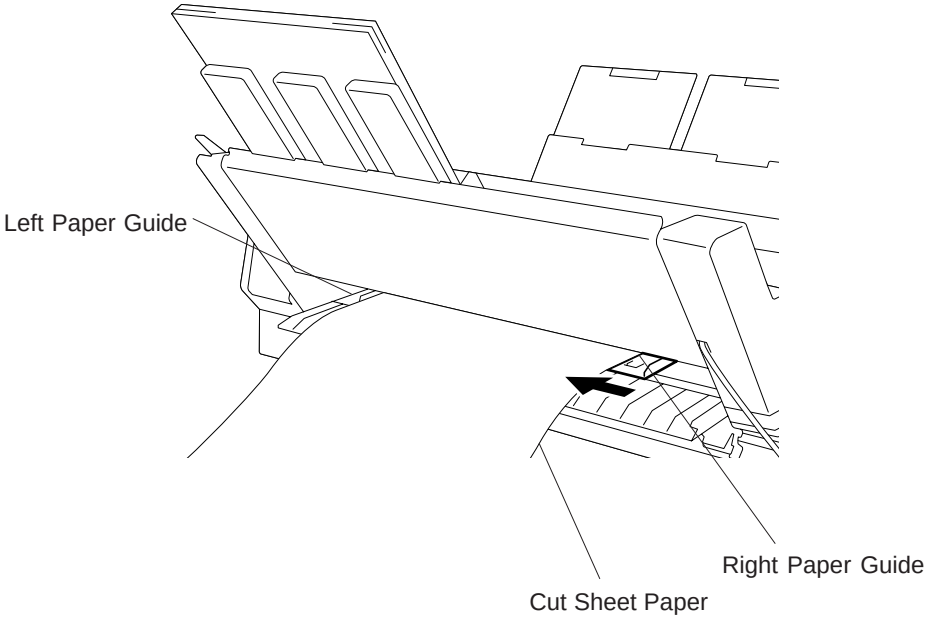


6) Turn the ASF Paper Set Lever of the ASF down in the direction indicated by the arrow.

7) To adjust the left margin, move the Left Paper Guide Left. The "[A" mark shows the standard print start position.



8) Insert cut sheet paper, aligning the left edge of the paper to the Left Paper Guide Left and then align the Right Paper Guide to the right edge of the paper.



9) Insert the cut sheet paper between the Left and Right Paper Guides. The paper is automatically fed up to the print start position, then the Ready lamp is lit and the printer is ready for printing.

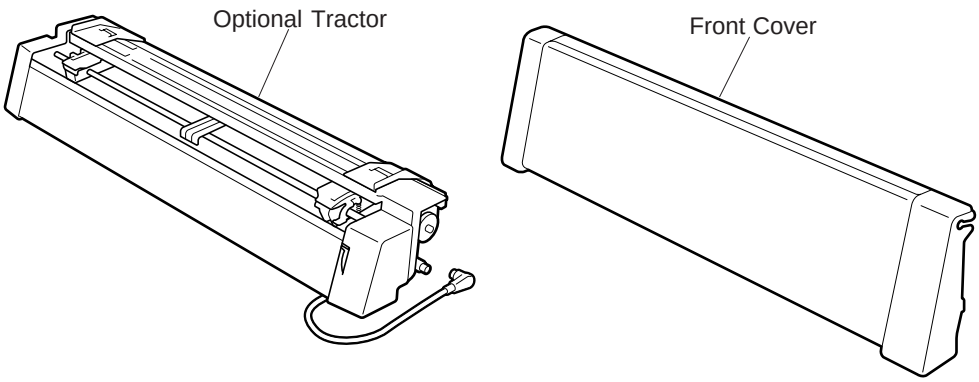
NOTES:
1. If the PRINT lamp is not lit, it means that in the Initial Setting Cut Sheet Paper Print Cancel is selected. In this case, press the [Start/Stop] key to get the printer ready.
2. The paper feed-out capacity is about 30 sheets for 55Kg-paper (ream) when the option "Feed-out to Rear" is ON. When the option "Feed-out to Front" is ON, you must remove the printed sheets one by one.

2.3. Optional Tractor

The Optional Tractor has the same functions as the built-in tractor the printer. When the Optional Tractor is installed, two different types of continuous paper can be set simultaneously and both can be selected for printing.
Alternating between the Optional Tractor and the built-in tractor is performed by the [Tractor] key on the Operation Panel. The fanfold paper on one tractor unit can be used for printing without unloading the fanfold paper on the other tractor unit.
When the Option Tractor is installed on the printer, you still can print with cut sheets inserting them manually one by one.
The Optional Tractor print mode is the "2nd Tractor Mode." When using the stanrdard tractor, the print mode is the "1st Tractor Mode."
For further details on paper, refer to Chapter 7: About Paper, page 7-1.
If any problem arises while the Optional Tractor is being used, refer to Chapter 5: Troubleshooting, page 5-10.
If an Optional Tractor is needed, order it from the store where the product was purchased.

2.3.1. Checking the Accessories

1) When the carton of the Optional Tractor is opened, check that all the following items are included:

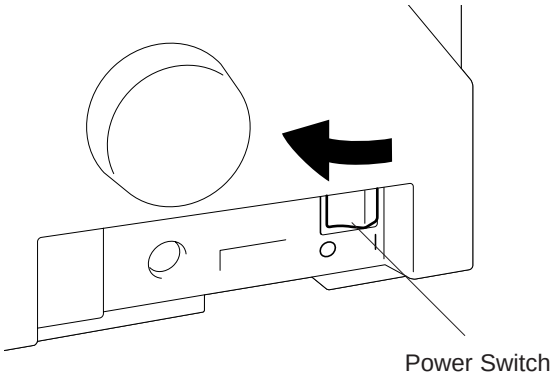


2) Should any items be missing or damaged, please do not hesitate to contact the store where the product was purchased.

3) Please keep the carton and packing materials. They will be necessary for moving or transporting the Optional Tractor.

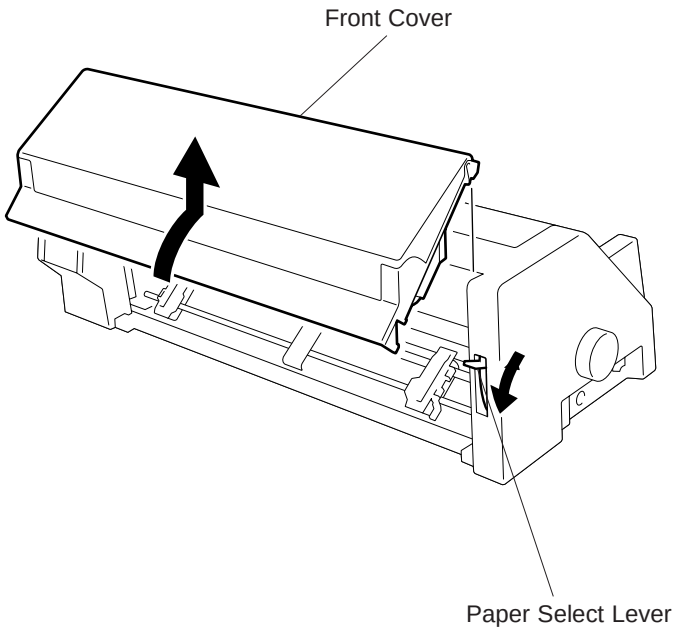
2.3.2. Installing the Optional Tractor

1) Turn the printer Power Switch OFF ("O").

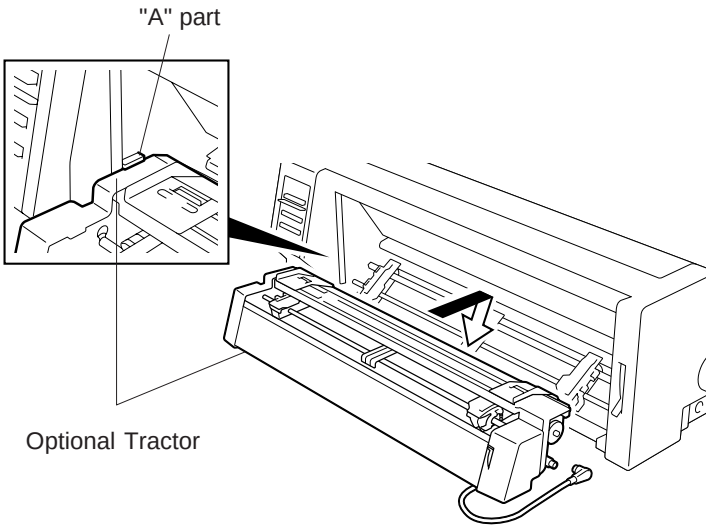


2) Open the Front Cover halfway, and remove it.

3) Push the Paper Select Lever down to Fanfold Paper Mode.



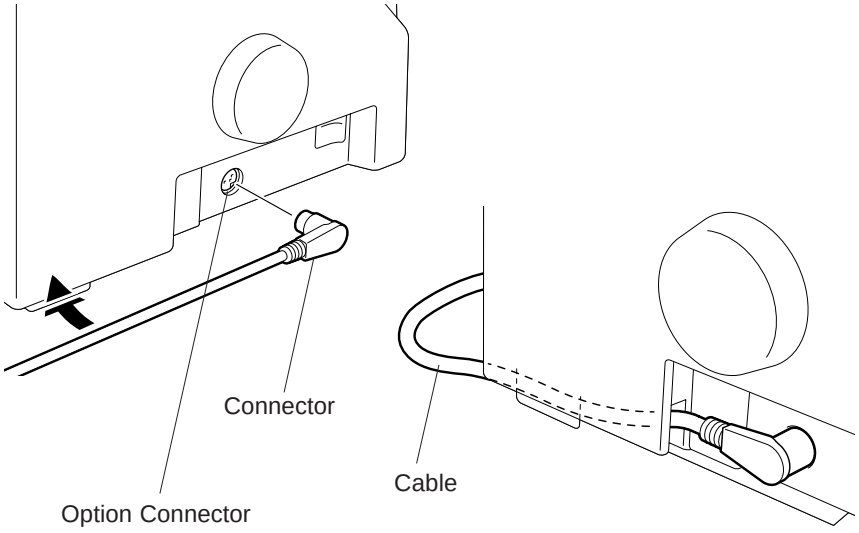
4) Insert the Optional Tractor ensuring that the top part run along the "A" parts on both sides of the printer.



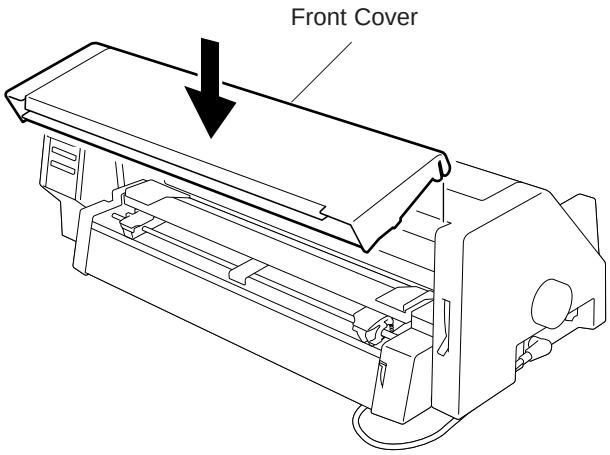
NOTE: Before installing the Optional Tractor, move the Sprocket Blocks of the printer at least 15 mm way from the frame of the printer.

5) Plug the Optional tractor connector into the printer connector.

6) Secure the Option Tractor cable as shown in the figure below.

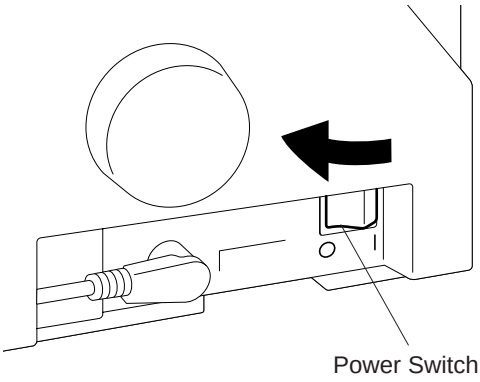


7) Install the Front Cover (contained in the package) onto the printer.

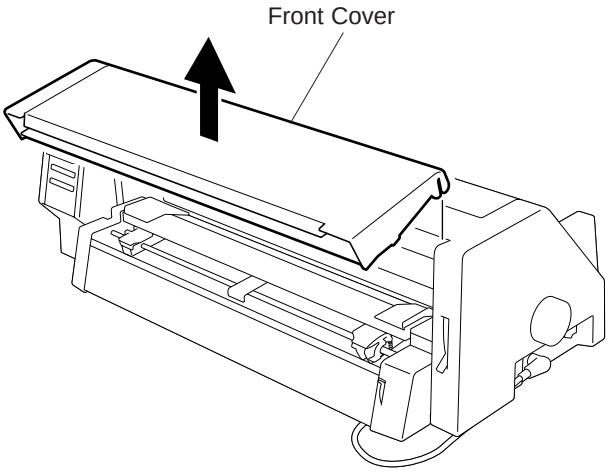


2.3.3. Removing the Optional Tractor

1) Turn the printer Power Switch OFF ("O").

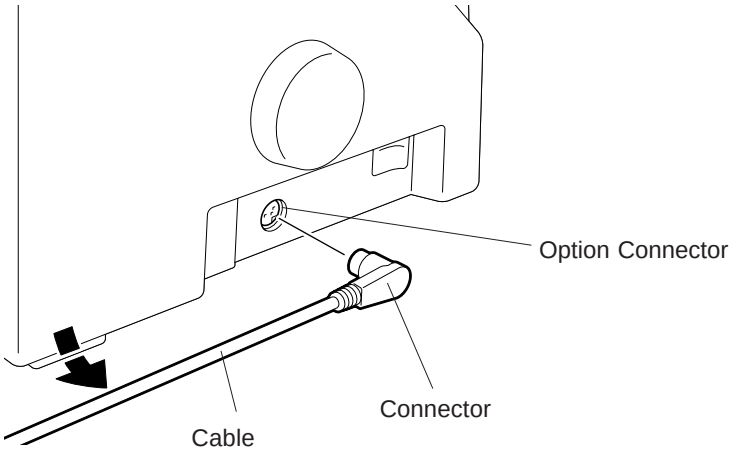


2) Open the Front Cover halfway, and remove it.



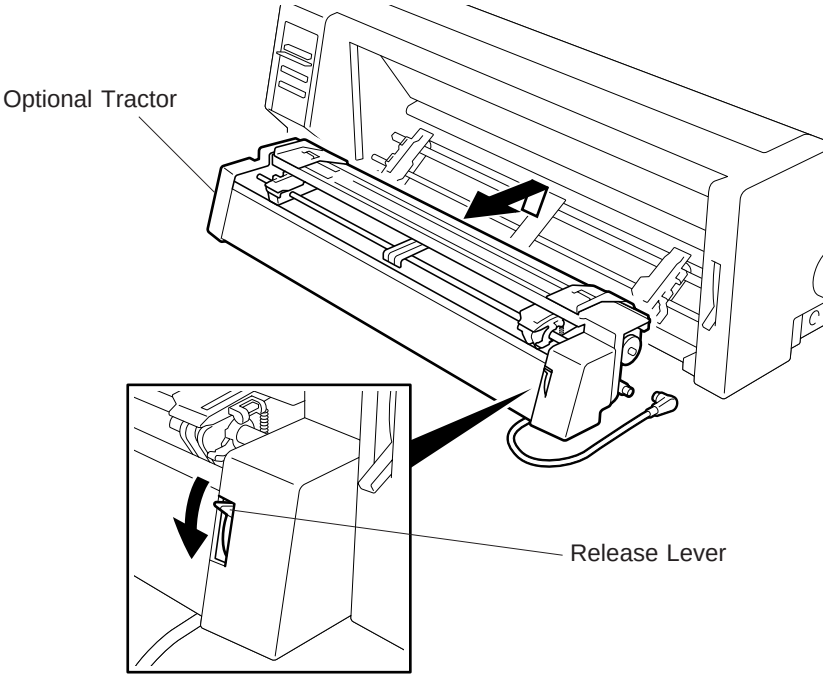
3) Unplug the Optional Tractor connector from the printer Option Connector.

4) Detach the Option Cable of from the printer.



5) Push down the Optional Tractor Release Lever. The gears are disengaged and the Release Lever returns to the upper position.

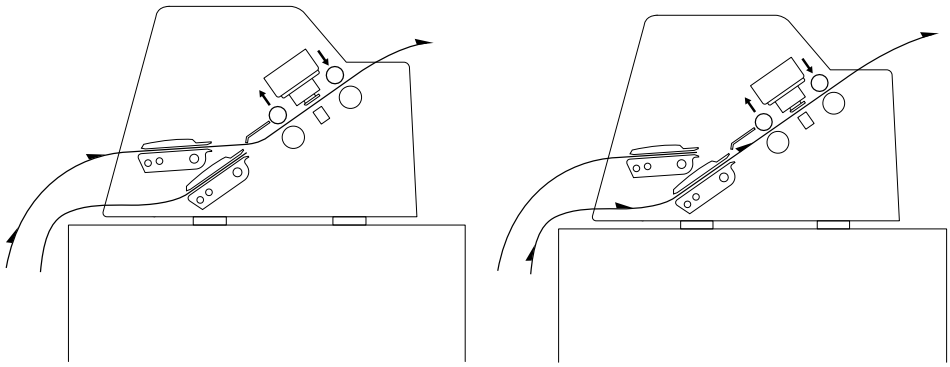
6) Slightly lift it up and pull it forward to detach the Optional Tractor from the printer.



2.3.4. Installing the Fanfold Paper

When the Optional Tractor is installed, you can select alterately the two tractors according to the paper used, as in the figures below.

NOTE: When the printer is printing, do not push down the Release Lever of the Optional Tractor. A paper jam may result.

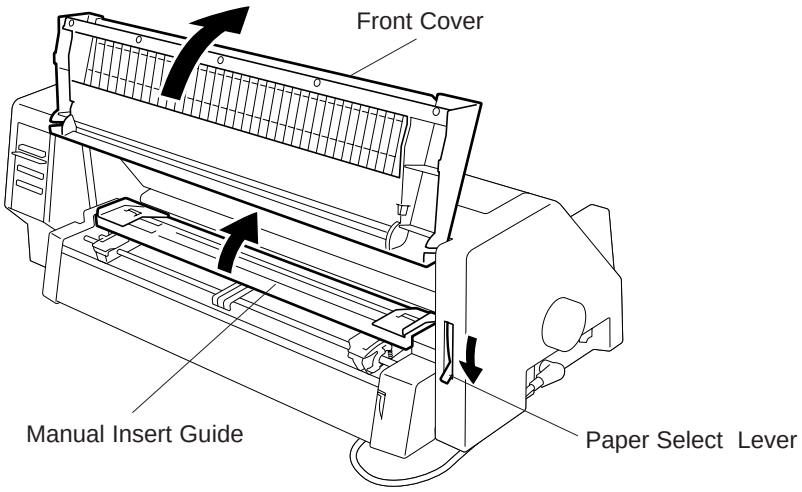


2nd Tractor Mode

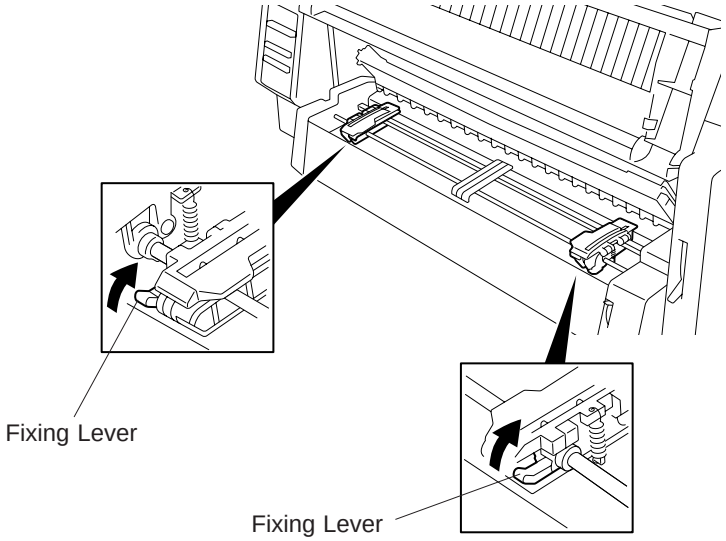
1st Tractor Mode

NOTE: To use fanfold paper, return the Paper Stand and the Paper Sub Stands to their original positions.

1) Adjust the Gap Set Lever according to the paper type of paper to be used. See Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.
2) Push down the Paper Select Lever to Fanfold Paper Mode.
3) Open the Front Cover.
4) Open the Manual Insert Guide.



5) Raise the Left and Right Sprocket Fixing Levers up in the as indicated by the arrow to release them.

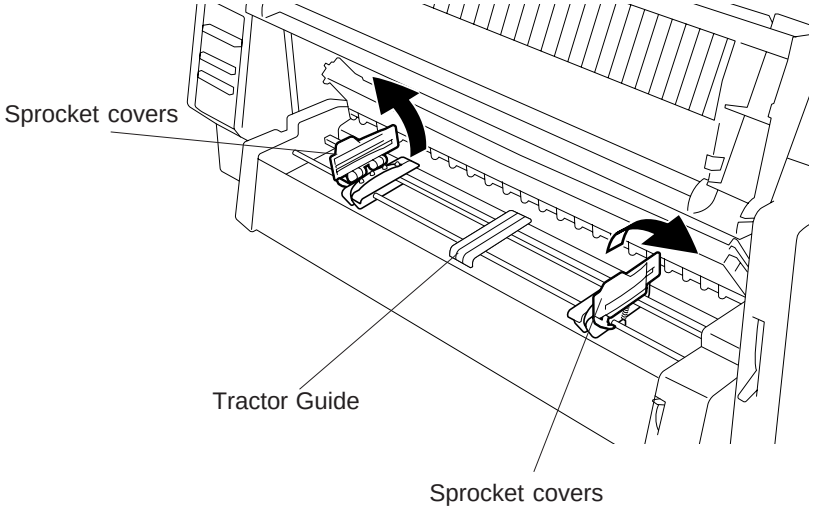


6) Open the Left and Right Sprocket Block Paper Holds.

7) Adjust the Left and Right Sprocket Blocks to the paper width.

8) Locate the Tractor Guide in the center between the Left and Right Sprocket Blocks.

NOTE The Tractor Guide is only installed on the tractors for the 3031 and 3036 models.

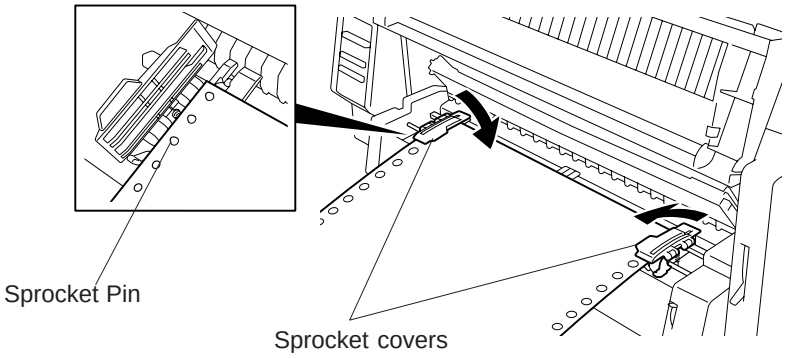


9) With the printing surface facing up, place the feeding holes on the left edge of the paper over the pins of the Left Sprocket and close the Sprocket cover.

   NOTE: Place the paper parallel on both Sprockets.

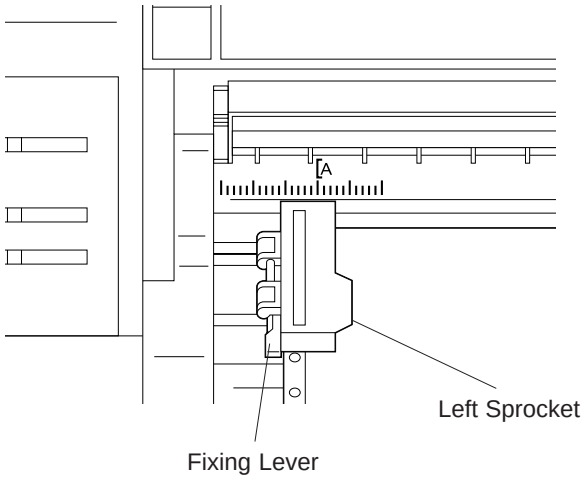
10) Ensure that the feeding holes on the right edge of the paper fit over the pins of the Right Sprocket, and close the Sprocket cover.

   NOTE: To avoid paper jams, ensure that the paper is installed correctly on both sides and placed over sprocket pins of the same level.



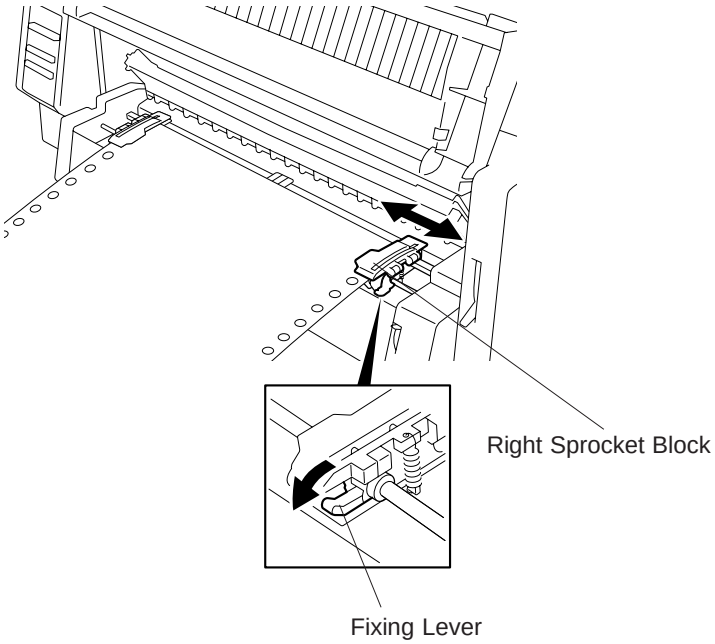
11) When the paper is installed, adjust the left margin moving the Sprockets. The ["A" mark shows the standard print start position.

12) Push down the Fixing Lever of the Left Sprocket to lock it in place.



13) To remove slack from the paper, move the Right Sprocket Block, then push down the Fixing Lever to lock the Right Sprocket Block.

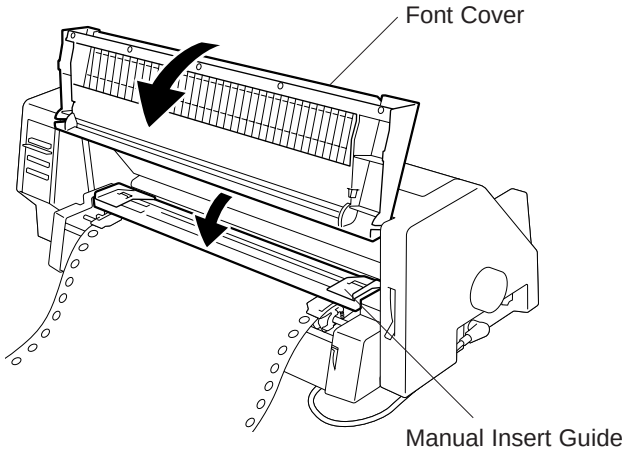
NOTE: If the paper slack cannot be removed, adjust the Left Sprocket Block position.
Be careful not to stretch the paper so much that it tears.



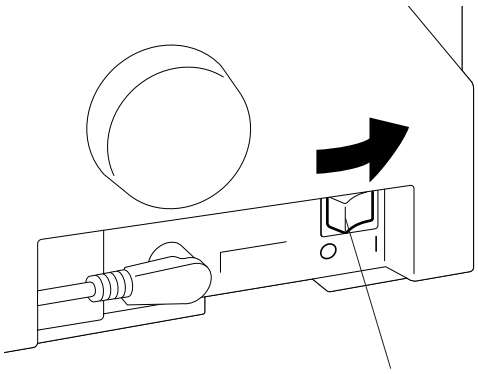
14) Push down the Manual Insert Guide

15) Close the Front Cover

NOTE: Before closing the Front Cover, ensure that the Sprocket Block Paper Holds are closed.



16) Turn the Power Switch ON ("|")position.



17) If the 2nd TRACTOR lamp is off, press the [Tractor] key to select the Optional Tractor (2nd Tractor).
The paper feeds up to the print start position.

18) Press the [Start/Stop] key. The Ready lamp is lit and the printer is ready to print.

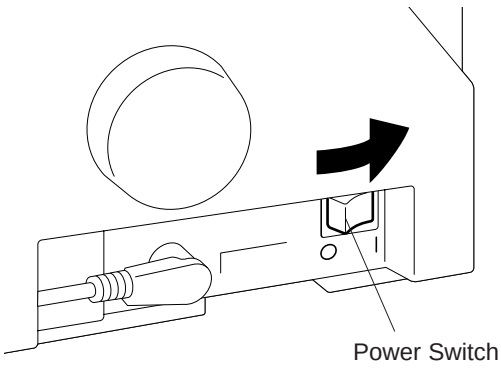
19) If the 1st Tractor Mode (the built-in tractor) is to be used while in the 2nd Tractor Mode (the Option Tractor), refers to Section 2.3.5: Alternating Between Tractors, page 6-28 in this chapter.

2.3.5. Alternating between Tractors

If the 1st Tractor Mode (for the built-in tractor) is to be used while the 2nd Tractor Mode (Optional Tractor) is set, or vice versa, follow this procedure.

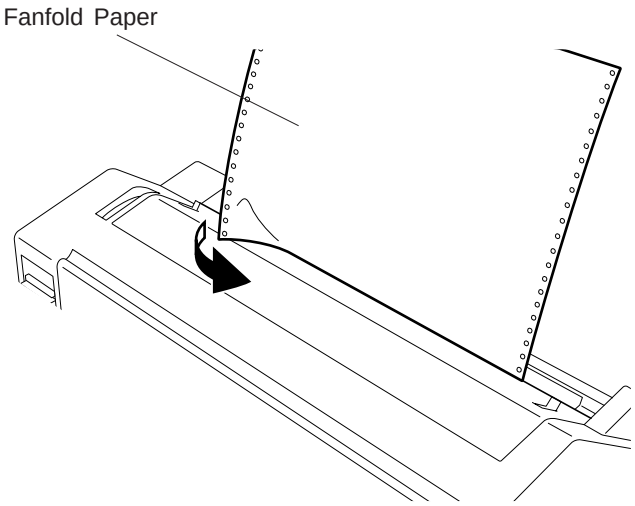
(1) In the 2nd Tractor Mode:

1) Turn the Power Switch ON ("|").



2) Press the [Start/Stop] key to put the printer on line.

3) Tear off the printed fanfold paper at the perforated line.

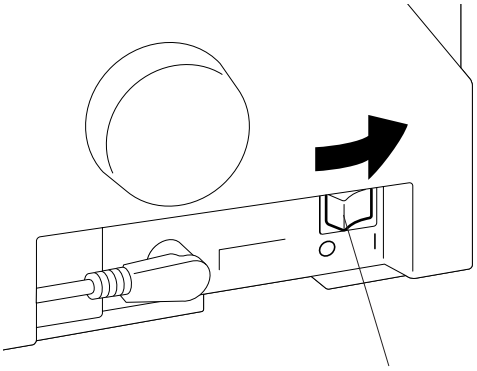


4) Press the [Tractor] key. The 1st Tractor Mode is selected and the 1st TR lamp is lit. The fanfold paper on the Optional Tractor is moved back to the park position, and the fanfold paper installed on the standard tractor is loaded into the printer.

5) Press the [Start/Stop] key. The Ready lamp is lit and the printer is ready to print.

(2) In the 1st Tractor Mode:

1) Turn the Power Switch ON ("|").

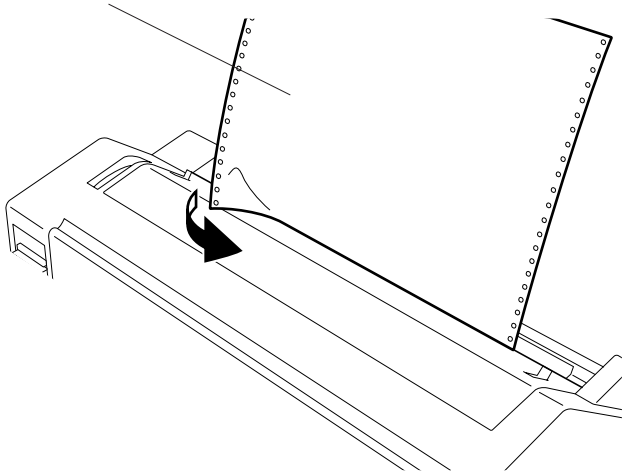


Power Switch

2) Press the [Start/Stop] key to put the printer on-line.

3) Tear off the printed fanfold paper at the perforated line.

Fanfold Paper

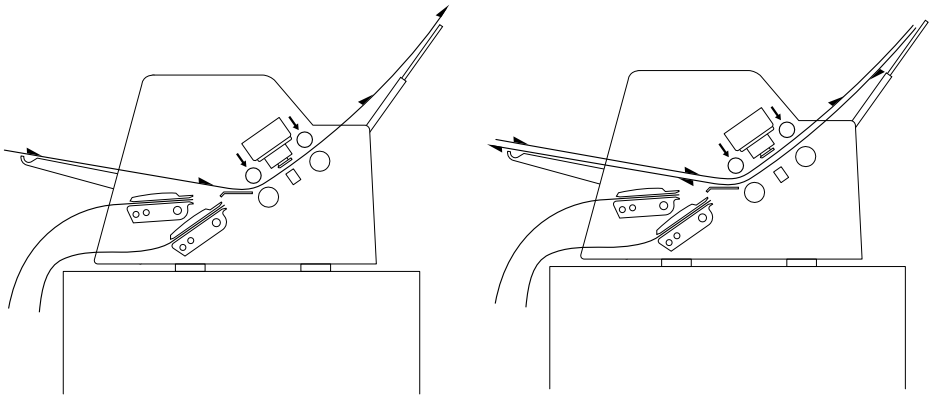


4) Press the [Tractor] key. The 2nd Tractor Mode is selected and the 2nd TR lamp is lit. The fanfold paper on the standard tractor is moved back to the park position, and the fanfold paper installed on the Optional tractor is loaded into the printer.

5) Press the [Start/Stop] key. The Ready lamp is lit and the printer is ready to print.

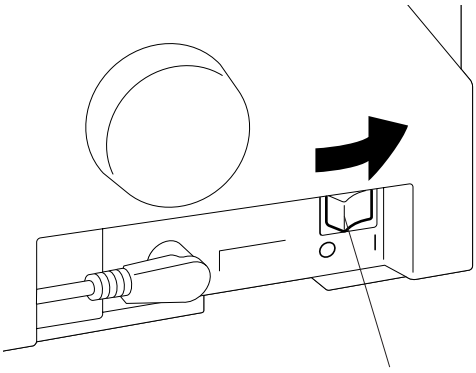
2.3.6. Handling Cut Sheets

If you need to print on cut sheets when the Optional Tractor is installed, insert the cut sheet from the front of the printer. The printed form can be fed out to the rear or front of hte printer according to the selection made in the Initial Setting. See Chapter 4: Initial Setting, page 4-3.



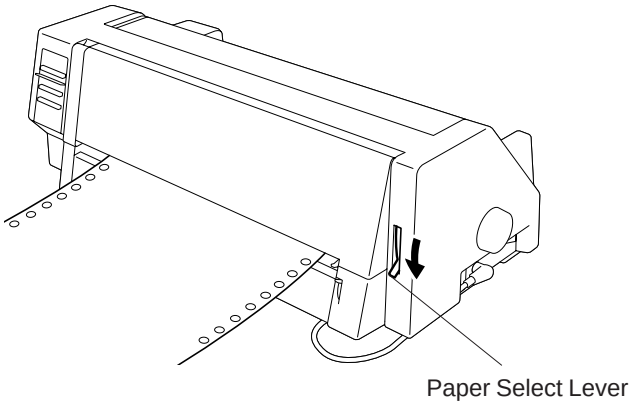
Rear Out Front Out

1) Turn the printer Power Switch ON ("|").

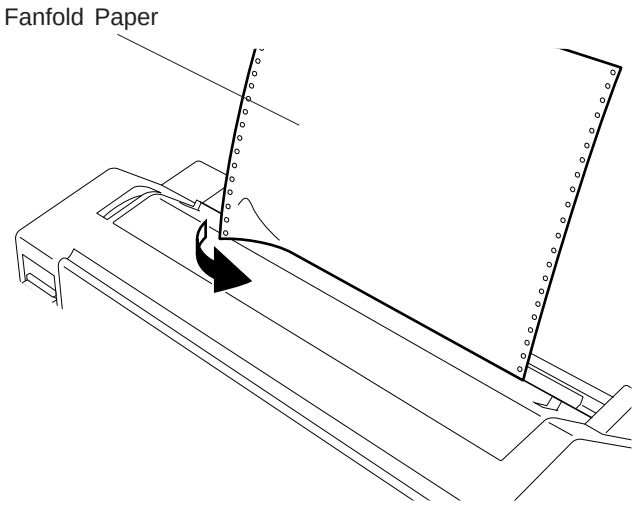


Power Switch

2) Push down the Paper Select Lever to Fanfold Paper Mode.



3) Tear off the printed fanfold paper at the perforated line.



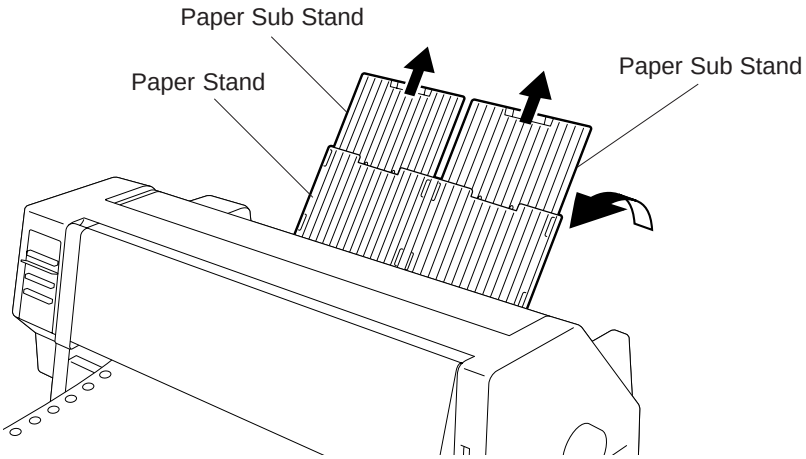
4) Press the [Start/Stop] key to put the printer online.

5) Press the [Park/Load] key. The fanfold paper is moved back to the park position.

6) Adjust the Paper Thickness Adjustment Lever according to the paper type to be used. See Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

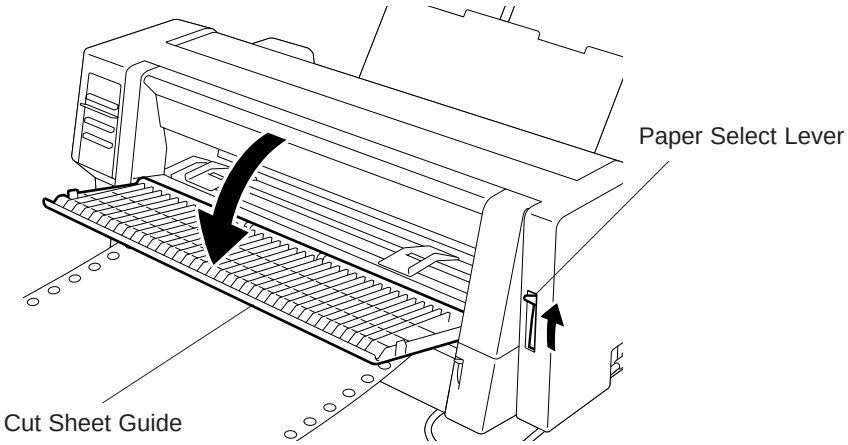
7) Raise the Paper Stand as shown in figure.

8) Holding the Paper Stand while pulling out the Paper Sub Stands.

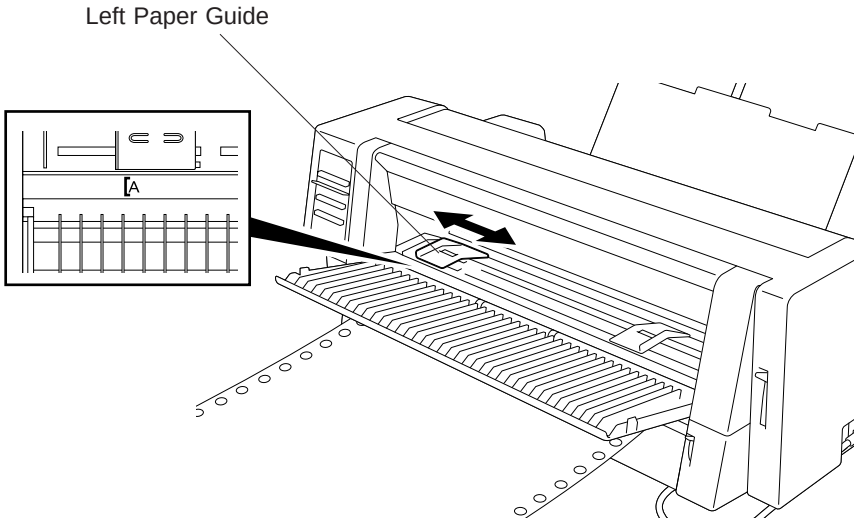


9) Push up the Paper Select Lever to Cut Sheet Paper Mode.

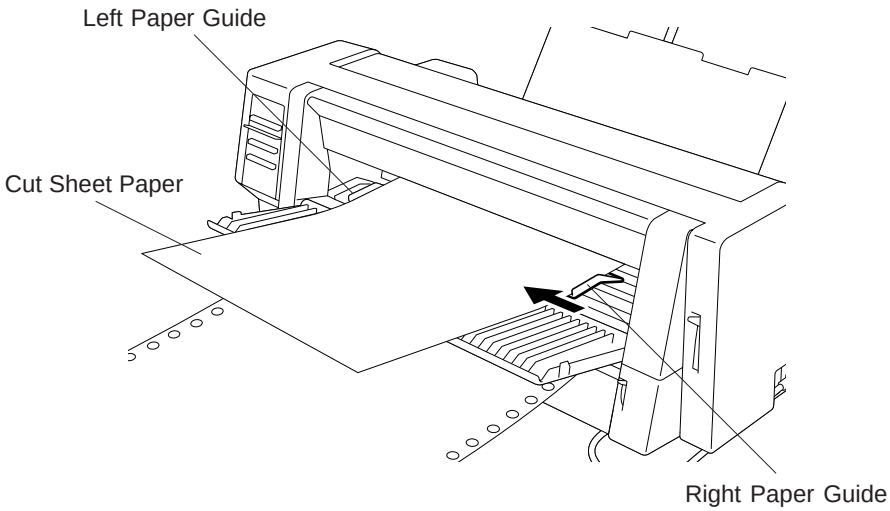
10) Open the Cut Sheet Guide.



11) To adjust the left margin, move the Left Paper Guide. The "[A" mark shows the standard print start position.



12) Insert a cut sheet into the printer, aligning the left edge of the paper to the Left Paper Guide and the right edge of the paper to the Right Paper Guide.



13) Insert the cut sheet paper between the Left and Right Paper Guides. The paper is automatically fed up to the print start position, then the Ready lamp is lit, and the printer is ready to print.

NOTES:

1. If the Ready lamp is off, it means that Cut Sheet Paper Print Cancel is selected in the Initial Setting. In this case, press the [Start/Stop] key to put the printer on-line.
2. The paper feed-out capacity is about 30 sheets for 55Kg-paper (ream) when the option "Feed-out to Rear" is ON. When the option "Feed-out to Front" is ON, you must remove the printed sheets one by one.

14) If you need to print on fanfold paper after printing on a cut sheet, push down the Paper Select Lever to Fanfold Paper Mode. Then press the [Park/Load] key to load the fanfold paper.

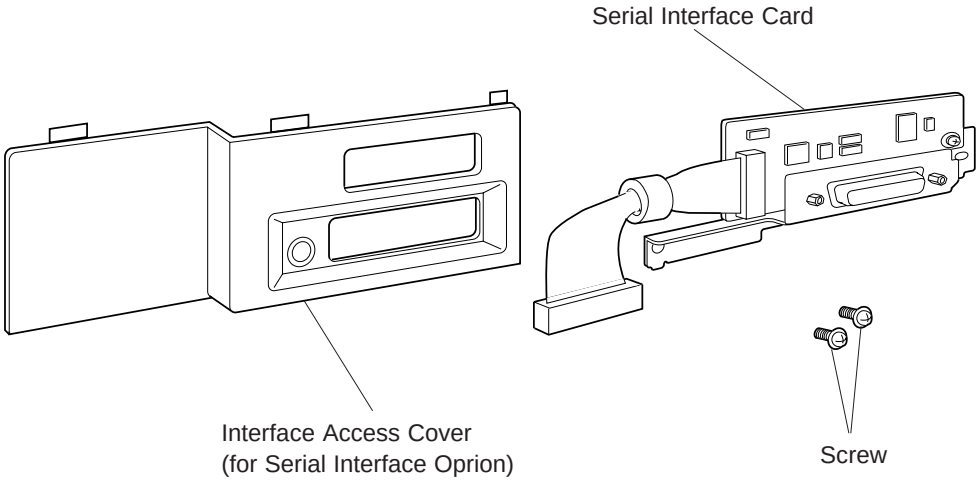
NOTE: When using fanfold paper, be sure to return the Paper Stand and the Paper Sub Stands to their original positions.

2.4 Serial Interface Option

The Serial Interface Option is used to connect to the host computer by RS-232C serial cable. The Serial Interface Option is installed in the printer, and the corresponding parameters can be set in the Setup menu.
If the Serial Interface Option is needed, order it from the store where the product was purchased.

2.4.1 Checking the Accessories

1) When the carton of the Serial Interface Option is opened, check that all the following items are included:

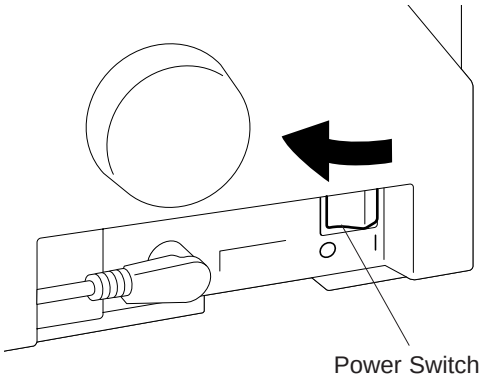


2) Should any items be missing or damaged, please do not hesitate to contact the store where the product was purchased.

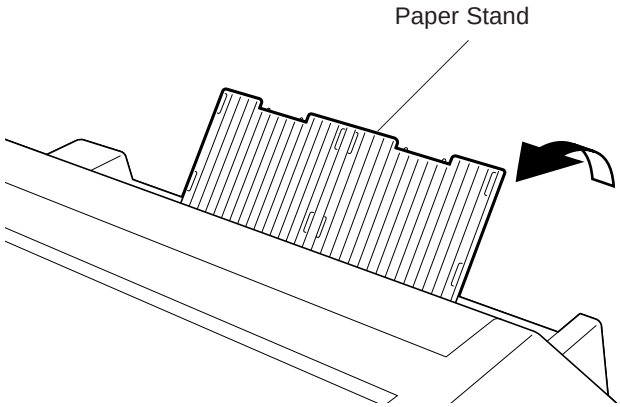
3) Please keep the carton and packing materials. They will be necessary for moving or transporting the Serial Interface Option.

2.4.2 Installing the Serial Interface Option

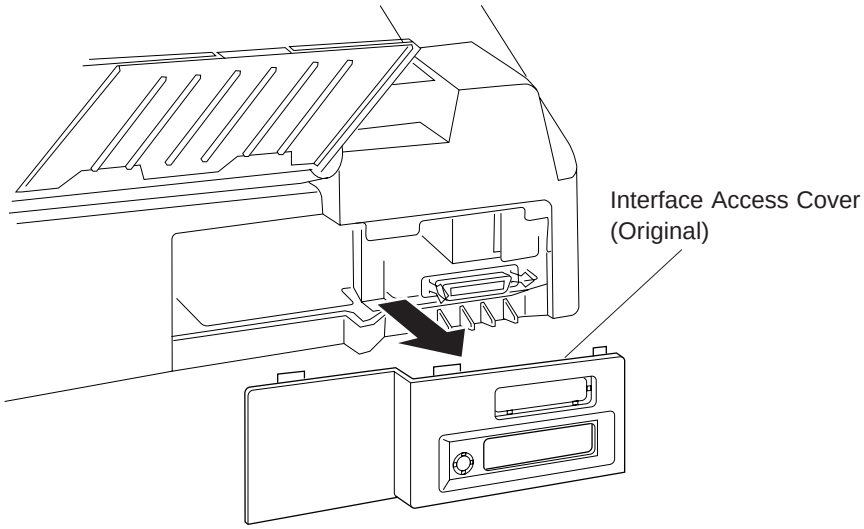
1) Turn the printer Power Switch OFF ("O").



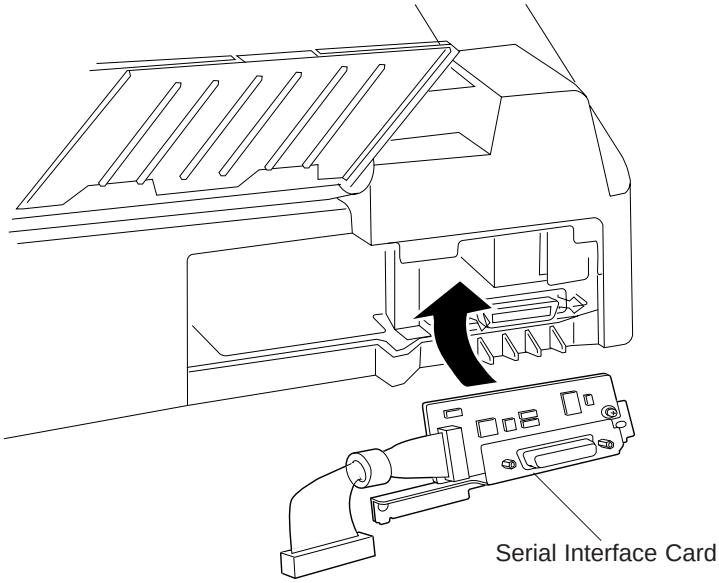
2) Raise the Paper Stand in the direction indicated by the arrow.



3) Pull the Interface Access Cover out of the printer.



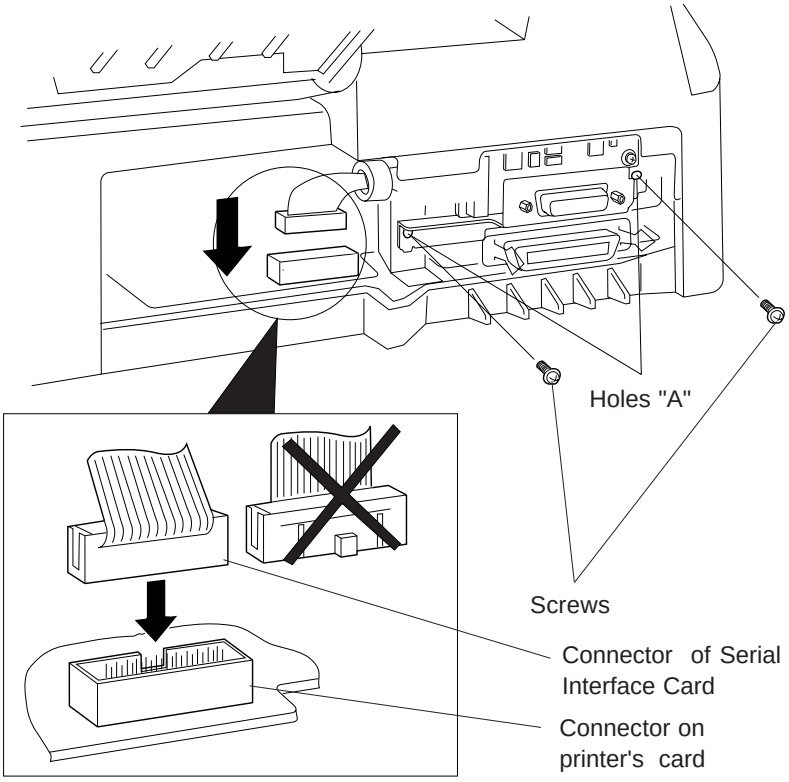
4) Insert the Serial Interface Card into the rear of Cover, then rotate the bottom of Serial Interface Card to secure it to the printer.



5) Match the holes "A" of Serial Interface Card to the screw holes. Then tighten the Screws which are included in the package of this option with the plus screwdriver.

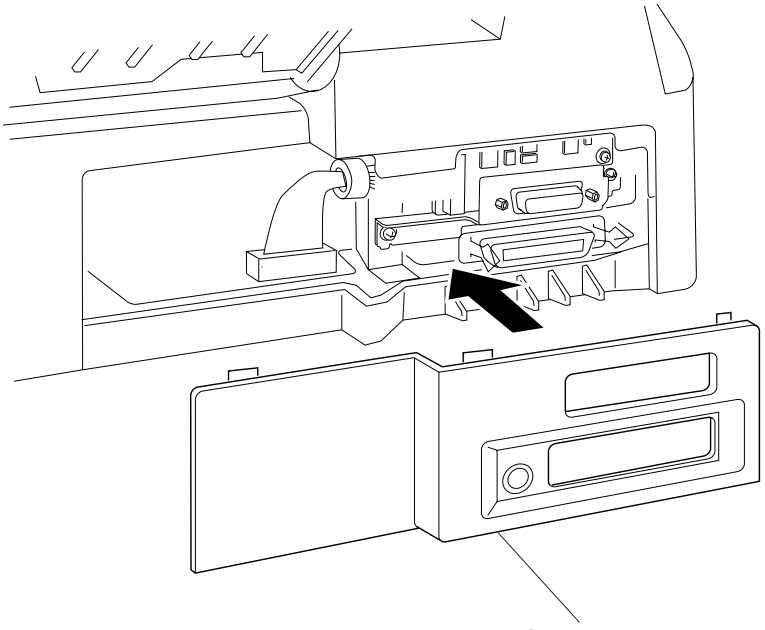
6) Insert the connector of Serial Option Card into the connector on the printer's card.

NOTE Please check the direction of connector.
If you insert the connector in the wrong dirction, the connector may be damaged.



7) Insert the Interface Access Cover included in Serial Interface Option.

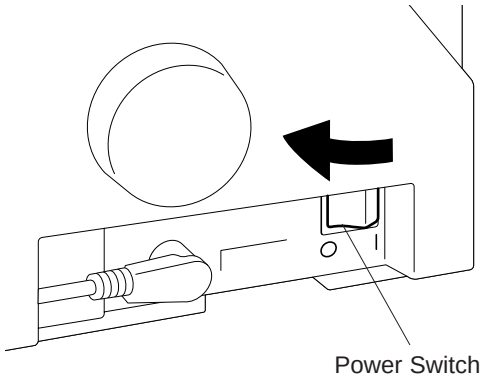
NOTE Do not use the printer without the Interface Access Cover.



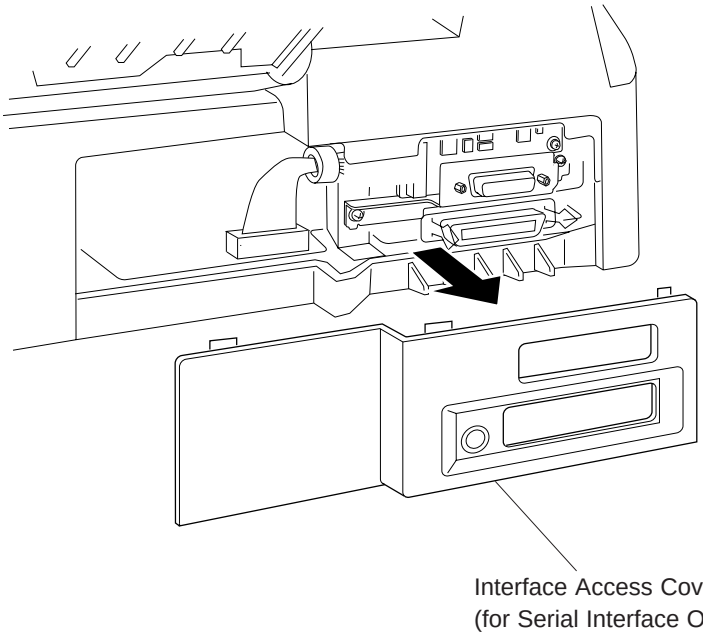
Interface Access Cover
(for Serial Interface Option)

2.4.3 Removing the Serial Interface Option

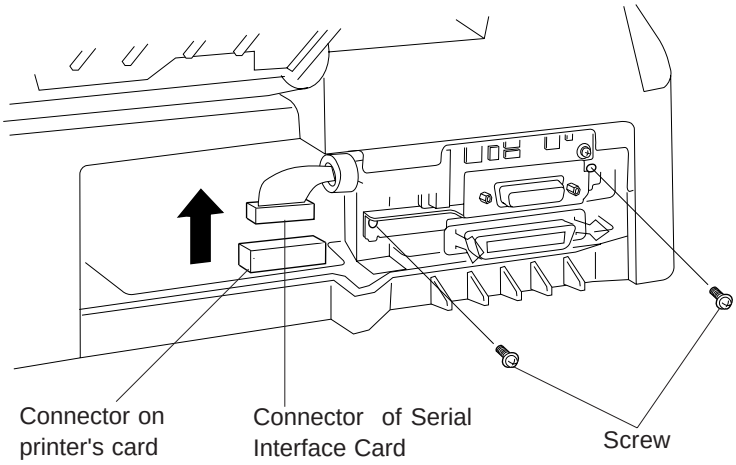
1) Turn the printer Power Switch OFF ("O").



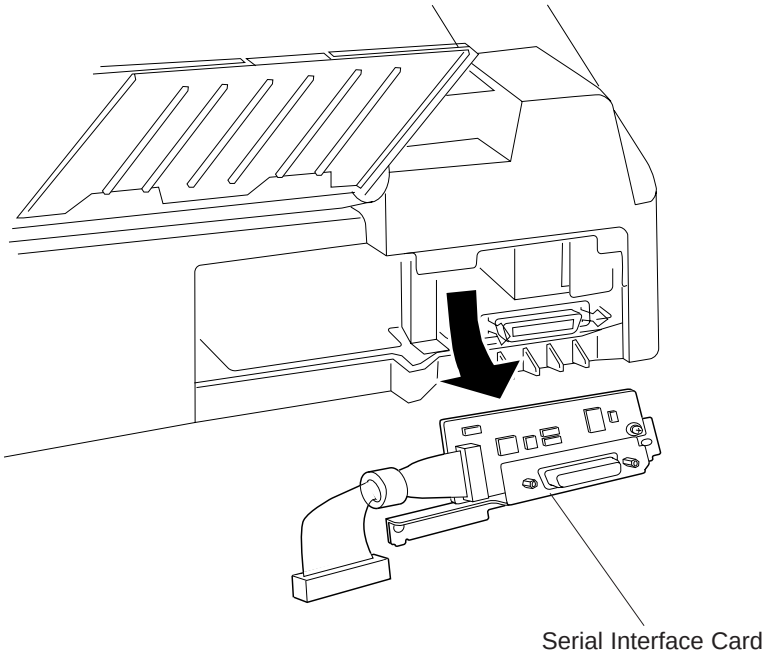
2) Pull the Interface Access Cover out of the printer.



3) Remove the connector of Serial Option Card from the connector on the printer's card.
Then remove two screws of setting the Serial Option Card by plus screwdriver.

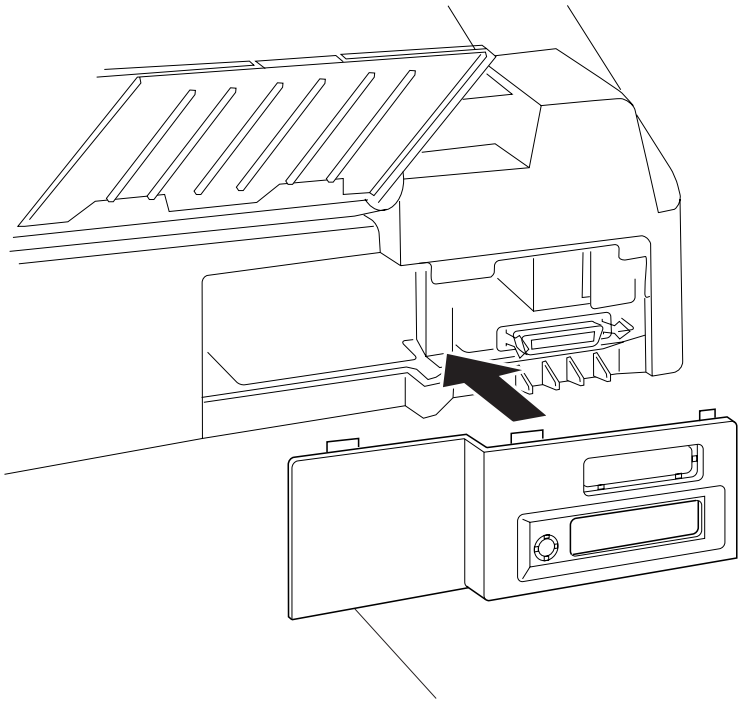


4) Remove the Serial Interface Card from the rear of Cover.



5) Reinsert the original Interface Access Cover .

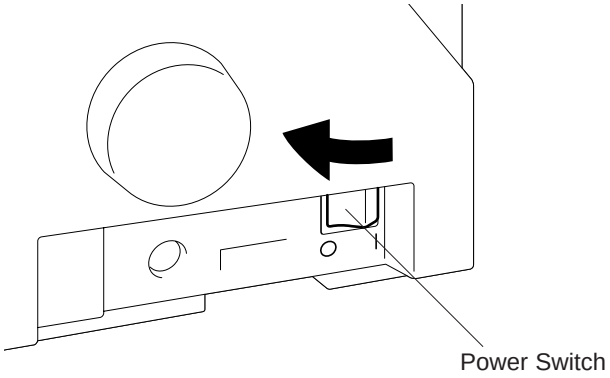
NOTE Do not use the Interface Access Cover included in Serial Interface Option.
Do not use the printer without the Interface Access Cover.



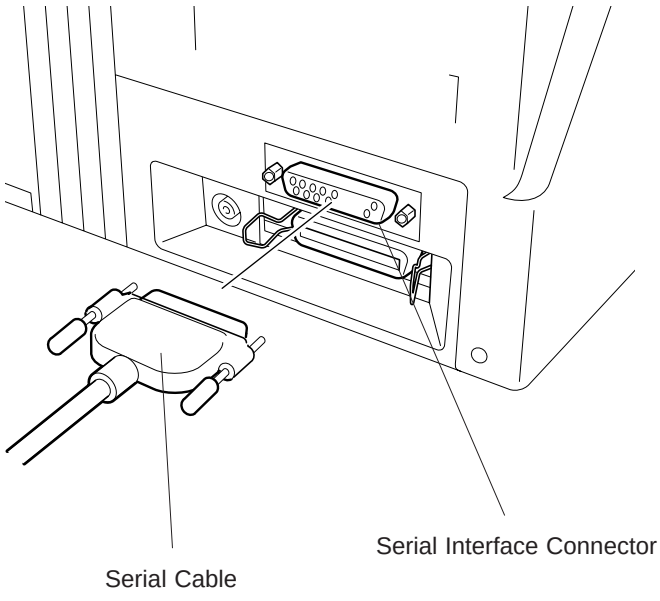
Interface Access Cover
(Original)

2.4.4. Connecting the Serial Cable

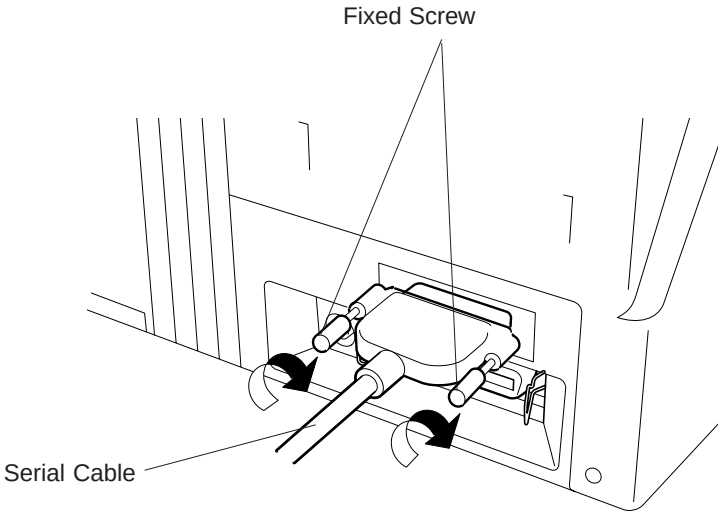
1) Turn the printer Power Switch OFF (marked with a "O" symbol).



2) Connect the Serial Cable connector to the Serial Interface Connector.



3) Fix the connector the fixed screws on both side of the serial connector.



4) Connect the other end of the Serial Cable to the system unit.

2.4.5 Specification of the Serial Interface Option

1) PROTCOL	DTR, XON/XOFF
2) TRANSFER RATE	19200, 9600, 4800, 2400, 1200, 600, 300
3) DATA LENGTH	7 Bits, 8 Bits
4) PARITY BITS	Non, Ignore, Odd, Even
5) STOP BITS	1 Bit, 2Bits

6) PIN ASSIGNMENT

Pin No.		Signal
1	FG	Frame Ground
2	TXD	Transmit Data
3	RXD	Raceive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	SG	Signal Ground
20	DTR	Data Terminal Ready

2.4.6 Example of How to Change the Serial Interface Option Setting

To change the transfer rate setting in the Main Menu's Serial Interface from 9600 to 19200.

1) Install the Serial Interface Option in the printer.
2) Install the fanfold paper in the printer.
3) Press the [Start/Stop] key to put the printer offline (with the Ready lamp off).
4) Open the Function Cover, and press the [Set Up] key. The printer starts the Initial Set Mode and prints the Main Menu.

Print Results of the Main Menu for 3036/36N:

```
>Setup Main Menu

   Light        When          To Select
-----------  ------------  ----------------------------------------
10 Pitch     On            Character
                               Font/Pitch/Zro Slash
12 Pitch     On            Forms
                               Form Length/Line Length
                               Skip Pref/Cut Sheet Bottom/LPI
15 Pitch     On            Data Control
                               Eject by FF
                               Buffer/Auto LF/Auto CR
17 Pitch     On            Printer Control
                               Tear Off/Front Eject/Ready on DID
                               Uni-Dir Prnt/Paper Out Alarm
                               User Setting/Bi-Di Aligment
20 Pitch     On            Emulation
                               IBM      :AGM/Code Page/Char Set
                               EPSON    :Table Set/Int'l Char Set
24 Pitch     On            Print All Setting
PS Pitch     On            HEX DUMP
10 Pitch     Blinking      Serial Interface
                               RS-232C :Protcol/Trans. Rate
                                        Data Length/Parity Bits
                                        Stop Bits

  MICRO UP/DOWN & PITCH KEY      : Select Light & Status
  TRACTOR KEY                    : Enter Sub Menu
  START/STOP KEY                 : End
```

for 3031/31N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF/FF Enable Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :Code Page/Char Set Pro-III Mode/20 Pitch EPSON :Table Set/Int'l Char Set
PS Pitch	On	Print All Setting
10 Pitch	Blinking	HEX DUMP
12 Pitch	Blinking	Serial Interface RS-232C :Protcol/Trans. Rate Data Length/Parity Bits Stop Bits

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

4) Press the [Micro ↑] or [Micro ↓] key to select Serial Interface Setting (Trans. Rate). (The 12 Pitch lamp remains blinking.)

5) With Serial Interface Setting (Trans. Rate) selected, press the [Tractor] key. The Sub Menu of theSerial Interface Setting is printed.

Sub Menu Print Results.

>>Serial Interface

Light	When	To Select	Current Setting
10 Pitch	On	RS-232C	Enable
(RS-232C)			
10 Pitch	Blinking	Protocol	DTR
12 Pitch	Blinking	Trans. Rate	9600
15 Pitch	Blinking	Data length	8 Bits
17 Pitch	Blinking	Parity Bits	No Paity
20 Pitch	Blinking	Stop Bits	1Bits

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Value Menu
START/STOP KEY : End

6) Press the [Micro ↑] or [Micro ↓] key to select Trans. Rate .
(The 12 Pitch lamp is blinking.)

7) With Trans. Rate selected, press the [Tractor] key.
The Trans. Rate Value Menu is printed.

Value Menu Print Results

```
>>>Trans. Rate (RS-232C)

  Light          When        To Select
----------     ----------    ----------------------
10 Pitch         on          9600
12 Pitch         on          4800
15 Pitch         on          2400
17 Pitch         on          1200
20 Pitch         on          600
24 Pitch         on          300
PS Pitch         on          19200

MICRO UP/DOWN & PITCH KEY          : Select Light & Status
TRACTOR KEY                        : Save
START/STOP KEY                     : Quit
```

8) Press the [Micro ↑] key to select 19200 .
(The 10 Pitch lamp is lit.)

9) Press the [Tractor] key. The Trans. Rate is changed to 19200, and the buzzer sounds to indicate that the setting has been changed.

10) After the change is complete, the Item Menu is restored and the following Item Menu is printed.

>>Serial Interface

Light	When	To Select	Current Setting
10 Pitch	On	RS-232C	Enable
(RS-232C)			
10 Pitch	Blinking	Protocol	DTR
12 Pitch	Blinking	Trans. Rate	19200
15 Pitch	Blinking	Data length	8 Bits
17 Pitch	Blinking	Parity Bits	No Paity
20 Pitch	Blinking	Stop Bits	1Bits

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Value Menu
START/STOP KEY : End

11) Press the [Start/Stop] key. The Main Menu is restored and then printed.

Print Results of the Main Menu
for 3036/36N:

```
>Setup Main Menu

   Light        When          To Select
-----------  ------------  ----------------------------------------
10 Pitch     On            Character
                               Font/Pitch/Zro Slash
12 Pitch     On            Forms
                               Form Length/Line Length
                               Skip Pref/Cut Sheet Bottom/LPI
15 Pitch     On            Data Control
                               Eject by FF/FF Enable
                               Buffer/Auto LF/Auto CR
17 Pitch     On            Printer Control
                               Tear Off/Front Eject/Ready on DID
                               Uni-Dir Prnt/Paper Out Alarm
                               User Setting/Bi-Di Aligment
20 Pitch     On            Emulation
                               IBM      :Code Page/Char Set
                                         Pro-III Mode/20 Pitch
                               EPSON    :Table Set/Int'l Char Set
24 Pitch     On            Print All Setting

PS Pitch     On            HEX DUMP

10 Pitch     Blinking      Serial Interface
                               RS-232C :Protcol/Trans. Rate
                                        Data Length/Parity Bits
                                        Stop Bits

  MICRO UP/DOWN & PITCH KEY    : Select Light & Status
  TRACTOR KEY                  : Enter Sub Menu
  START/STOP KEY               : End
```

for 3031/31N:

>Setup Main Menu

Light	When	To Select
10 Pitch	On	Character Font/Pitch/Zro Slash
12 Pitch	On	Forms Form Length/Line Length Skip Pref/Cut Sheet Bottom/LPI
15 Pitch	On	Data Control Eject by FF/FF Enable Buffer/Auto LF/Auto CR
17 Pitch	On	Printer Control Tear Off/Front Eject/Ready on DID Uni-Dir Prnt/Paper Out Alarm User Setting/Bi-Di Aligment
20 Pitch	On	Emulation IBM :Code Page/Char Set Pro-III Mode/20 Pitch EPSON :Table Set/Int'l Char Set
PS Pitch	On	Print All Setting
10 Pitch	Blinking	HEX DUMP
12 Pitch	Blinking	Serial Interface RS-232C :Protcol/Trans. Rate Data Length/Parity Bits Stop Bits

MICRO UP/DOWN & PITCH KEY : Select Light & Status
TRACTOR KEY : Enter Sub Menu
START/STOP KEY : End

12) Press the [Start/Stop] key to complete the Initial Setting mode. The changed settings are stored, the Initial Diagnostic functions are executed, and then the printer returns to Normal Print mode.

3. Cleaning

To maintain the printer in good condition, please perform periodical cleaning every 2 or 3 months.
Before cleaning, proceed as follows.

⚠ CAUTION	The print head may be hot immediately after printing. Wait until it cools down (about 15 minutes) before cleaning.

1) Turn the printer Power Switch OFF ("O").

2) Unplug the Power Cord.

3.1. Cleaning the Inside of the Printer

Use a soft brush to remove dust, ribbon pieces, paper bits, etc.

3.2. Cleaning the Cover

Use a soft cloth moistened with water and a mild detergent to wipe dust, smudges, and stains off of the printer's cover.
Do not use any volatile chemicals (benzine, paint thinner, alcohol, etc.).
Such chemicals may damage the cover surface.

Chapter 7. Paper

This chapter describes paper that can be used with this printer.
Ensure that all paper used is free of tears, dust, wrinkles, and curled or bent edges.

1. Remarks on Paper

If a large amount of paper is to be printed, be sure to perform a test print. Check that the paper feeds correctly and the printout is clear.
Types of paper that should not be used with the printer include:

Paper with uneven thickness;
Paper with exposed or partially peeled-off adhesive labels;
Paper with metallic parts;
Paper with cut-outs or windows (including binding holes);
Paper with engravings;
Folded paper;
Paper with folded or torn edges;
Extremely thin or thick paper (which exceeds paper specifications);
NOTE: When using a multi-sheet form, a maximum of 5 copies including the original is normally acceptable. This obviously depends also on the paper weight (thickness).
Paper thicker than 0.35 mm cannot be used.
Particularly small or large paper (exceeding the paper specifications);
Warped paper;
NOTE: Do not expose paper to high temperatures or humidity, to avoid curling or wrinkling.
Before using curled paper, it must be bend to straighten it.

Use white high-quality paper (recycled paper can also be used).

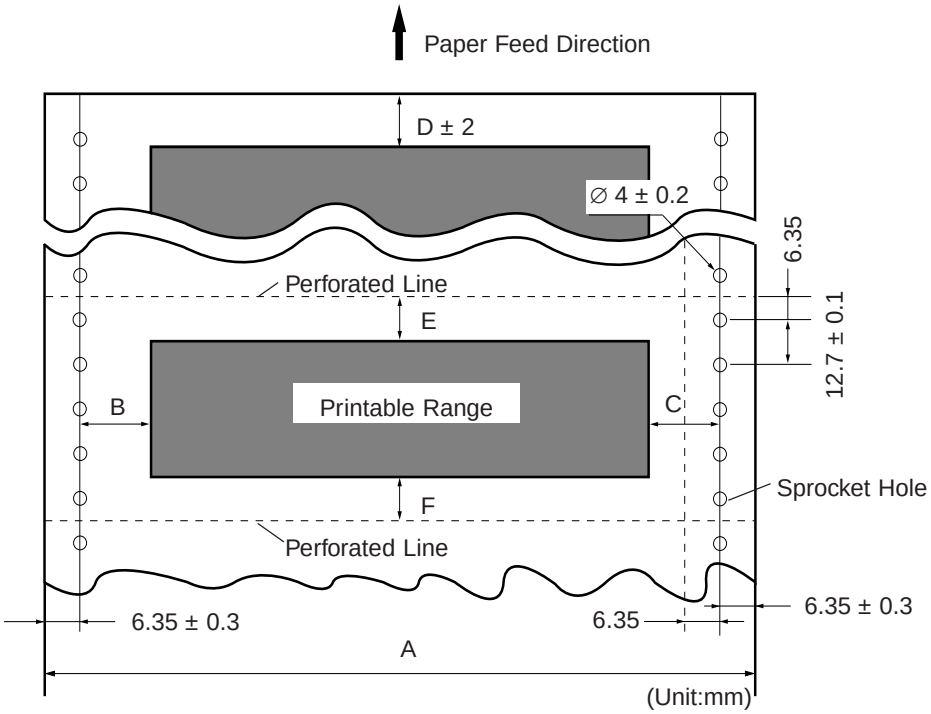
If paper with the following characteristics is to be used, be sure to perform sufficient print tests before using:

- Label Paper (Labels may peel off when the paper is moved backwards.)
  NOTE: Do not print on the label support paper or across the border line between the support and the label.
- Multi-sheet Form Paper (no-needle stapling)
- Postcards or envelopes which exceed the paper specifications

2. Fanfold Paper (when the standard or the Optional Tractor is used)

2.1. Printable Area and Paper Size

(when printing is performed using the print head Pin No. 1)



SYMBOL	SIZE	CONTENTS
A	3 to 16 in. (3036, 3031) 3 to 10 in. (3036 N, 3031N)	Paper Width
B	6.35 mm (Min.)	To avoid print smudges, caused by the vertical perforated lines and the feeding holes, printing should not be performed within this range. For best results, a width of at least 12 mm should be assured.
C	6.35 mm (Min.)	
D	6.35 mm	This is the top allowance for auto-feeding (the distance from the top of the paper to the print head Pin No. 1)
E	6.35 mm	To avoid print smudges, caused by the horizontal perforated lines, printing should not be attempted within this range.
F	6.35 mm	To avoid print smudges, caused by the horizontal perforated lines, printing should not be performed within this range. Please also note that for the F range, it is advisable not to print in a range of about 20 mm from the lower margin.

NOTE: 3031, 3036; When using 16-inch paper, the "B" value is about 13 mm (Min.).

3031N, 3036N; When using 10-inch paper, the "B" value is about 13 mm (Min.).

2.2. Paper-Type and Number of Copies in a Multi-sheet Form

for 3036/36N

PaperQuality	Ream(Kg)	Number of Copies
High-quality Paper	43 to 135	1
One-time Back-carbon Paper	32.5 to 38.5	4
	32.5 to 48.5	2 to 3
Impact Paper	32.5 to 38.5	4
	34 to 55	2 to 3

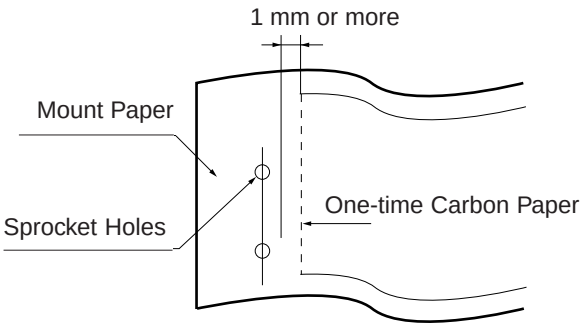
for 3031/3031N

PaperQuality	Ream(Kg)	Number of Copies
High-quality Paper	43 to 135	1
One-time Back-carbon Paper	32.5 to 38.5	4 to 6
	32.5 to 48.5	2 to 3
Impact Paper	32.5 to 38.5	4 to 6
	34 to 55	2 to 3

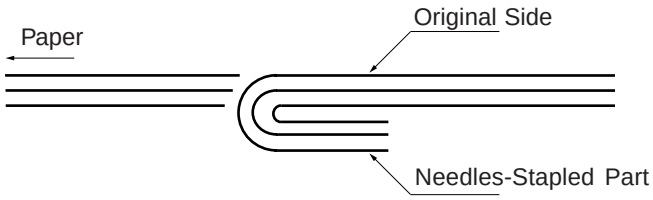
NOTES:
1. The value in the column "Number of Copies" indicates the number of sheets, including the original, in a form set to be printed in a single printing.
2. It is reccommended to use paper binded on both sides with adhesive dots or etched lines.
   Paper binded on both sides with paper staples can be used.
   Paper having both sides or single sides free cannot be used.
3. "Ream" is a unit of paper thickness, indicating the weight of 1,000 sheets at 788 mm x 1091 mm (weight unit: Kg).
4. Do not use paper with thickness of more than 0.35 mm.
5. Do not use fanfold paper in Cut Sheet Paper Mode.

2.3. Conditions for Using Multi-sheet Forms

(1) Any carbon paper should be glued to the backing paper and should not cover the feeding holes.

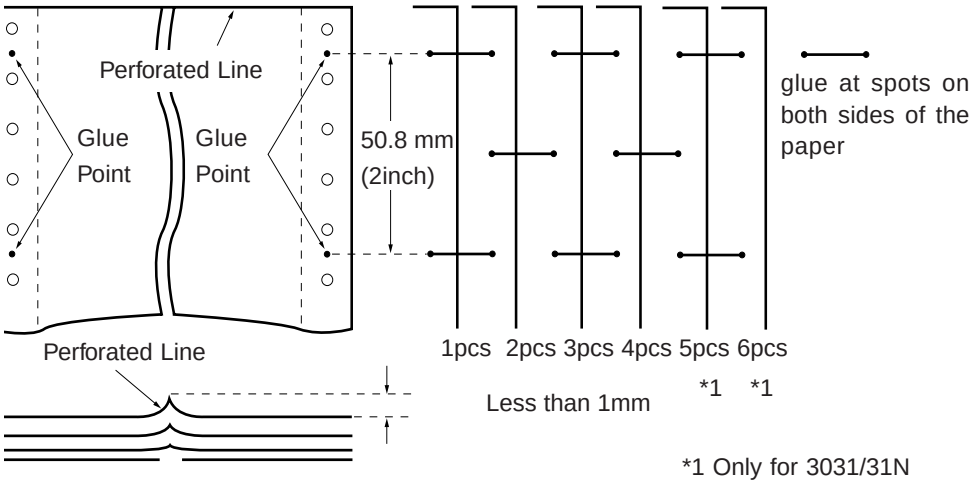


(2) The Paper-stapled part (by non-needle stapling) should be folded to the rear.



(3) The paper-stapled portion tends to cause large line gaps. Therefore, more than 2 parts should be used.

(4) If sheets are to be glued together, glue them near the feeding holes (less than 1/2 inch from either edge of the paper). When glueing the multi-sheets together, glue them at spots on both sides of the paper (refer to the figure below). When glueing, be careful to apply the glue equally and not create wrinkles. Do not let the perforated line be raised more than 1 mm (refer to the figure below).



*1 Only for 3031/31N

(5) Apply glue on both sides of multi-sheet forms.

(6) Do not use a multi-sheet form bound with a metal stapler, as it will damage the printer.

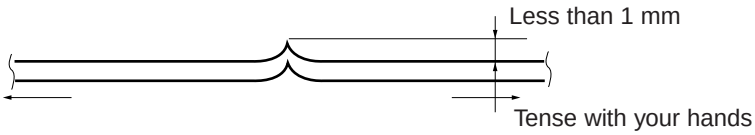
(7) Be careful to apply the glue equally and not create wrinkles.

(8) Do not use forms where the original sheet and the copy sheets have different sizes.

(9) When using a multi-sheet form, a maximum of 4 (for 3031/31N: 6) sheets, including the original, are acceptable, (depending on the ream). Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.

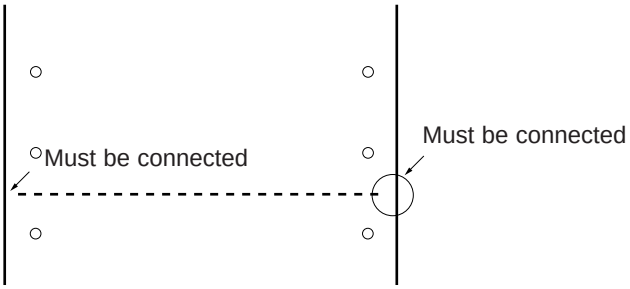
2.4. About Perforated Lines

(1) The height of the fold should be less than 1 mm when the folded paper is stretched out and slightly tensed.



(2) Use forms such as zig-zag-folded at the horizontal perforated lines.

(3) The paper edges should not be cut apart by horizontal perforated lines.



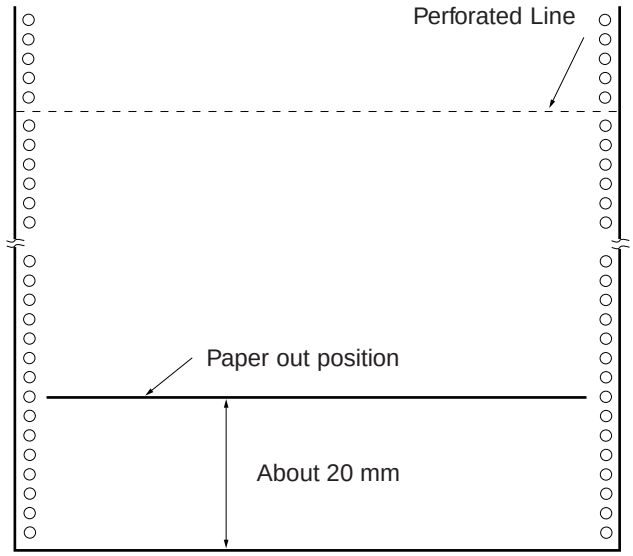
(4) No sheets should be curled up near the perforated lines.

(5) The vertical perforated lines should be placed within 1/2 inch of the paper's edge. Paper sheets should not be folded, curled, torn, etc. near the perforated lines.

(6) At the intersection of the vertical and horizontal perforated lines, the two cut lines should not cross each other.

2.5. When Fanfold Paper Runs Out

When a paper-out status is detected in Continuous Paper Mode, the printer automatically stops printing at approximately 6.4 mm above the bottom of the last page. Printing is disabled and the Paper Out lamp is lit.



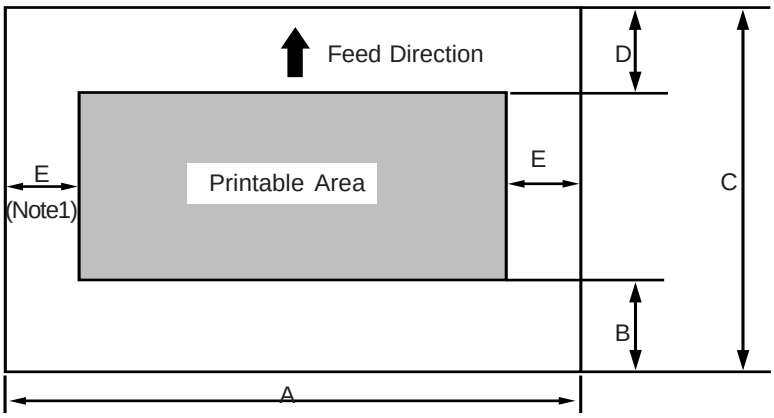
If the paper runs out while printing on fanfold paper, set new paper then press the [Start/Stop] key to resume printing. Be sure to set the correct page length.
If the page length recognized by the printer is different from that of the paper actually used, half-pages may be printed, or the platen may be printed on.

3. Cut Sheet Paper

3.1. Feeding Paper Through the Cut Sheet Insert Guide

3.1.1. Printable Area and Paper Size

(when printing is performed using the print head Pin No. 1)



SYMBOL	SIZE	CONTENTS
A	76.2 to 420 mm (3031, 3036)	Paper Width (3 inches to A3-size, landscape)
	76.2 to 297 mm (3031N/3036N)	Paper Width (3 inches to A4-size, landscape)
B	6.35 mm (Min.)	Distance from the paper edge to the print range
C	76.2 to 364 mm	Paper Length (3 inches to B4-size, portrait)
D	6.35 mm (Min.)	Distance from the paper edge to the print range
E	6.35 mm (Min.)	Distance from the paper edge to the print range

NOTES) 1. When using A3-size paper (landscape) for 3031 and 3036 model, the "E" value is about 37 mm (min.).
When using A4-size paper (landscape) for 3031N and 3036N models, the "E" value is about 40 mm (min.).

2. For paper with a 3-inch width, only the Left Paper Guide is to be used.

3.1.2. Types of Paper

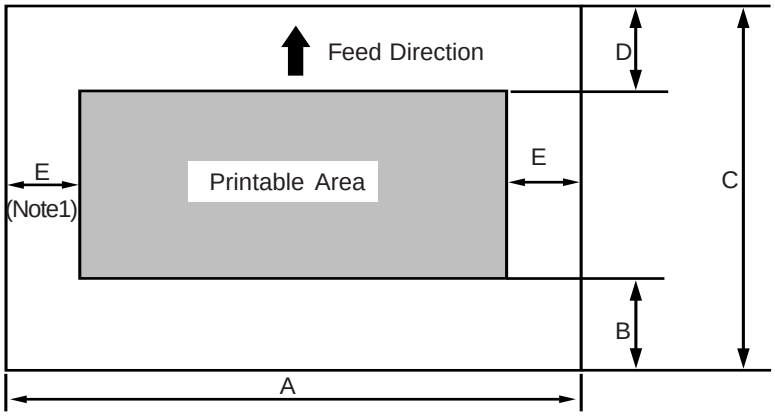
KIND OF PAPER			REAM (Kg)	SIZE
Single-sheet Paper	(A4-size, portrait)		38.5 to 78	210 X 297
Single-sheet Paper	(A4-size, landscape)			297 X 210
Single-sheet Paper	(B5-size, portrait)			182 X 257
Single-sheet Paper	(B5-size, landscape)			257 X 182
Single-sheet Paper	(B4-size, portrait)			257 X 364
Single-sheet Paper (3036 only)	(B4-size, landscape)			364 X 257
Single-sheet Paper (3036 only)	(A3-size, landscape)			420 X 297
Multi-sheet Paper	(2-3)		32.5 to 48.5	
Multi-sheet Paper	(4) (4-6)	for 3036 for 3031	32.5 to 38.5	

NOTE) Some multi-sheet paper exceed specifications and cannot be used.

3.2. Feeding Paper Through the ASF

3.2.1. Printable Area and Paper Size

(when printing is performed using the printer head Pin No. 1)



SYMBOL	SIZE	CONTENTS
A	100 to 420 mm (3031, 3036)	Paper Width (4 inches to A3-size, landscape)
	100 to 257 mm (3031N, 3036N)	Paper Width (4 inches to B4-size, portrait)
B	6.35 mm (Min.)	Distance from the paper edge to the print range
C	100 to 364 mm	Paper Length (4 inches to B4-size, portrait)
D	6.35 mm (Min.)	Distance from the paper edge to the print range
E	6.35 mm (Min.)	Distance from the paper edge to the print range

NOTES) 1. When using A3-size paper (landscape) for 3031 and 3036, model, the "E" value is about 37 mm (Min.).
When using B4-size paper (portrait) for 3031N and 3036N model, the "E" value is about 27 mm (Min.).

2. For paper with a 3-inch width, only the Left Paper Guide is to be used.

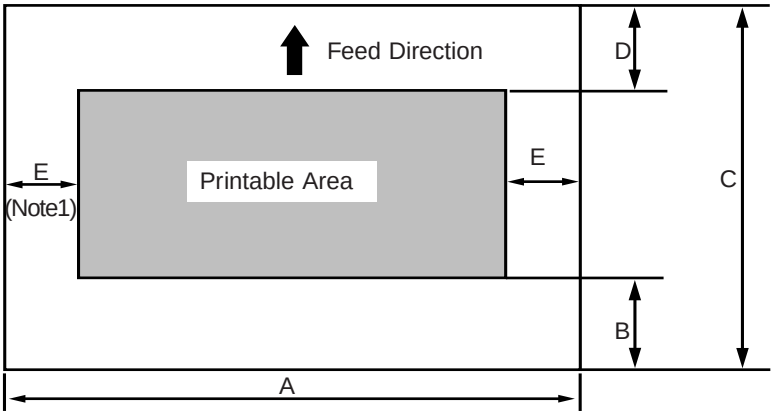
3.2.2. Types of Paper

KIND OF PAPER		REAM (Kg)	SIZE
Single-sheet Paper	(A4-size, portrait)	38.5 to 78	210 X 297
Single-sheet Paper (3036 only)	(A4-size, landscape)		297 X 210
Single-sheet Paper	(B5-size, portrait)		182 X 257
Single-sheet Paper	(B5-size, landscape)		257 X 182
Single-sheet Paper	(B4-size, portrait)		257 X 364
Single-sheet Paper (3036 only)	(B4-size, landscape)		364 X 257
Single-sheet Paper (3036 only)	(A3-size, landscape)		420 X 297
Multi-sheet Paper	(2-3)	32.5 to 48.5	
Multi-sheet Paper	(4) for 3036/36N (4-6) for 3031/31N	32.5 to 38.5	

NOTE) Some multi-sheet paper exceeds specifications and cannot be used.

3.3. Feeding Paper Through the Optional Tractor or the ASF Manual Insert Guide

3.3.1. Printable Area and Paper Size
(when printing is performed using the print head Pin No. 1)



SYMBOL	SIZE	CONTENTS
A	76.2 to 420 mm (3031, 3036)	Paper Width (3 inches to A3-size, landscape)
	76.2 to 257 mm (3031N/3036N)	Paper Width (3 inches to B4-size, portrait)
B	6.35 mm (Min.)	Distance from the paper edge to the print range
C	76.2 to 364 mm	Paper Length (3 inches to B4-size, portrait)
D	6.35 mm (Min.)	Distance from the paper edge to the print range
E	6.35 mm (Min.)	Distance from the paper edge to the print range

NOTES) 1. When using A3-size paper (landscape) for 3031, 3036 model, the "E" value is about 37 mm (Min.).
When using B4-size paper (portrait) for 3031N, 3036N model, the "E" value is about 27 mm (Min.).

3.3.2. Types of Paper

KIND OF PAPER	REAM (Kg)	SIZE
Single-sheet Paper (A4-size, portrait)	38.5 to 78	210 x 297
Single-sheet Paper (A4-size, landscape) (3036 only)		297 x 210
Single-sheet Paper (B5-size, portrait)		182 x 257
Single-sheet Paper (B5-size, landscape)		257 x 182
Single-sheet Paper (B4-size, portrait)		257 x 364
Single-sheet Paper (B4-size, landscape) (3036 only)		364 x 257
Single-sheet Paper (A3-size, landscape) (3036 only)		420 x 297
Multi-sheet Paper (2-3)	32.5 to 48.5	
Multi-sheet Paper (4) for 3036/36N (4-6) for 3031/31N	32.5 to 38.5	

NOTE) Some multi-sheet paper exceed specifications and cannot be used.

3.4. Conditions for Using Cut Sheet Paper

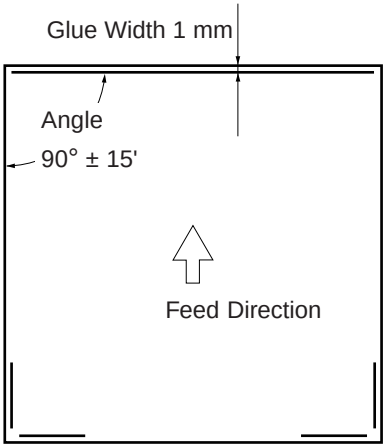
(1) The angle between the vertical and horizontal edges must be 90°±15'.

(2) Do not use cut sheet paper with perforated lines. Such paper may become jammed.

(3) As for multi-sheet forms, impact paper or carbon back paper can be used.
The number of sheets in a multi-sheet form must be a maximum of 5, including the original. However this may vary depending on the ream (thickness). Refer to Chapter 3, Section 5: Paper Thickness Adjustment, page 3-19.
A multi-sheet form where the size of the original sheet differs from that of the other sheets cannot be used.
Glued multi-sheet forms is allowed within a width of more than 1 mm from the top edge of the paper, and width of more than 1 mm and length of 10 mm near the left and right bottom edges. (Refer to the figure below).

NOTE: Uneven glue may cause paper jams.

Glue standards for multi-sheet forms



3.5. About the Print Area for Cut Sheet Paper

The print start position of paper is determined by setting the top margin at less than 6.4 mm using the [Set Line1] key. However, the actual distance from the top edge to the first print line is determined by the software, line feed value, etc. Set the last line to be printed at a distance of 11.3 mm or more from the bottom edge. Printing is possible lower than this, however, printing in this range may not be constant due to paper feeding errors or errors in the page length itself.

When using control codes to feed out cut sheet paper, be sure to use the ESC EM R code (to feed out paper) so that print data on the next page is not printed at the bottom. If your software application does not use the ESC EM R code, arrange the form by adjusting the bottom margin.

3.6. Remarks on Layout of Cut Sheet Paper

The printable area on cut sheet paper is shown in the figures on pages 7-8, 7-10, and 7-12. The actual print position, however, may be slightly different due to various factors. For the layout of preprint items on cut sheet paper, please take the following into consideration.

The non-printable area on the left edge may vary depending on the set position of the Left Paper Guide and on how the paper is inserted. If any print position difference arises, it may be adjusted by moving the Left Paper Guide.

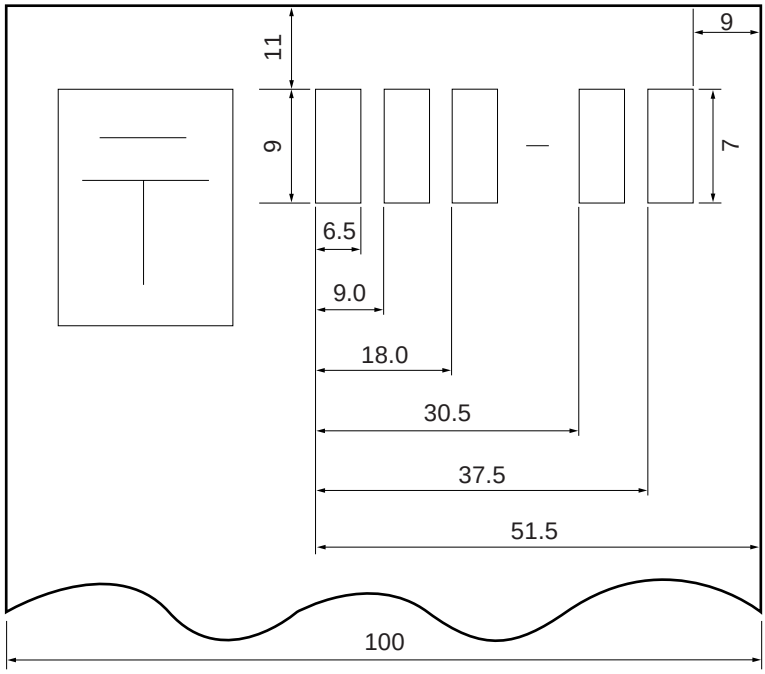
If printing all the way to the bottom margin, the paper may be fed out without printing the final line. To prevent this, please provide an extra line when designing the layout.

When using control codes to feed out cut sheet paper, use the ESC EM R (to feed out paper). Do not let the printer perform an auto page change by using the LF (Line Feed) code consecutively.

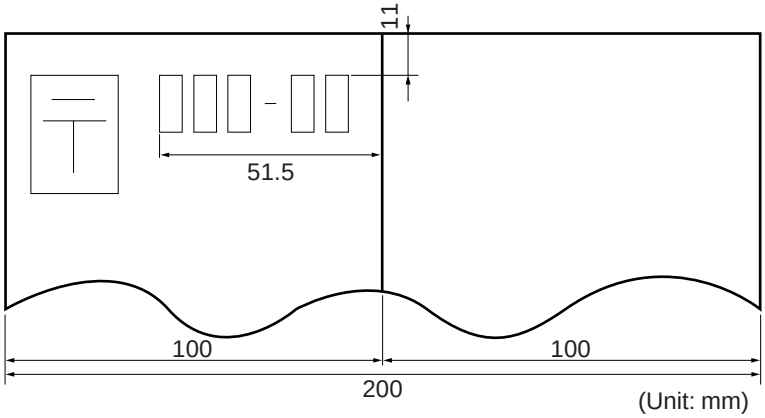
4. Postcards

4.1. Size and Standard

(1) Ordinary Postcard



(2) Reply Card



(Unit: mm)

TYPE	REAM	LONGER EDGE	SHORTER EDGE
Ordinary Postcard	110 Kg	148 mm	100 mm
Reply Postcard	110 Kg	200 mm	148 mm

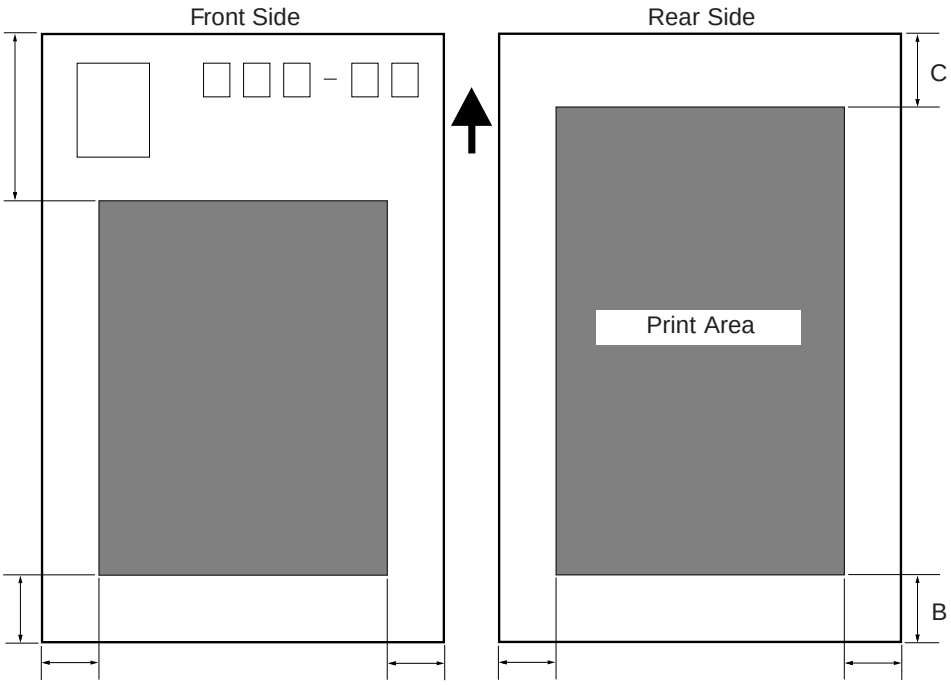
NOTE) A reply card folded at the center cannot be used.

4.2. Printable Range

(when printing is performed using the print head Pin No. 1)

(1) Ordinary Postcard

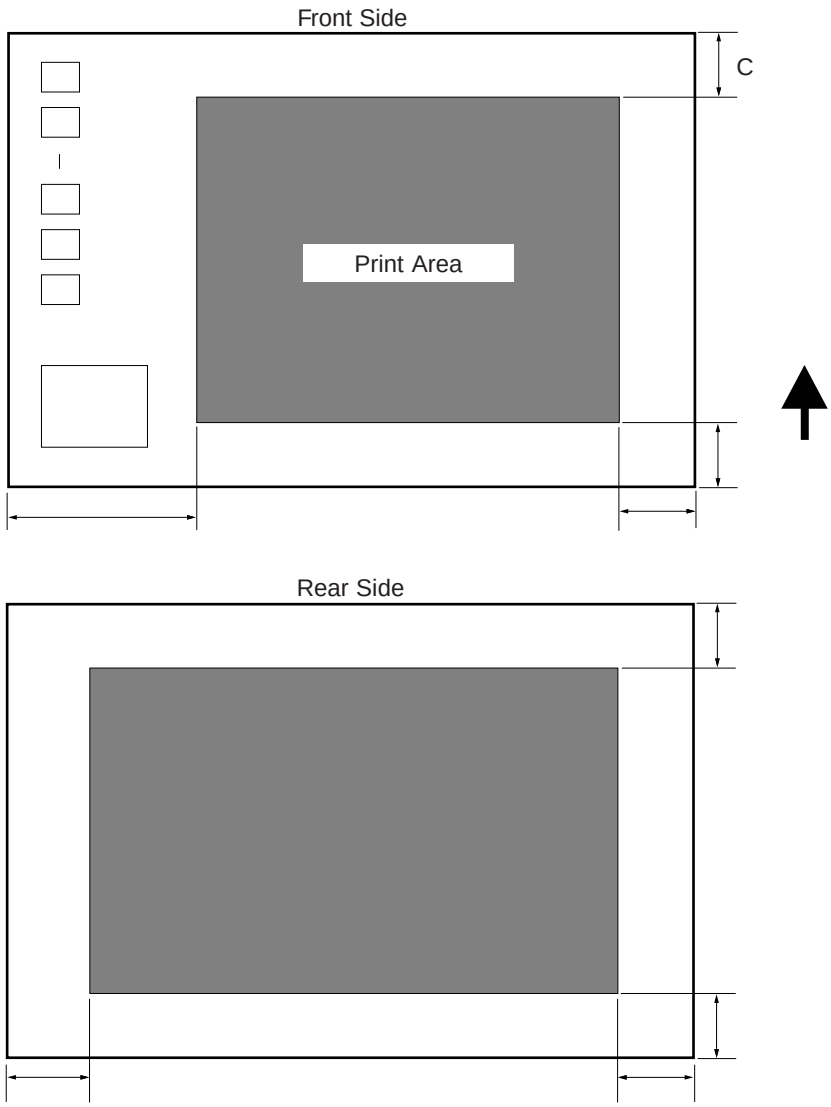
1) Inserting Long-edge First



SYMBOL	SIZE
A (NOTE)	30 mm (Min.)
B	11.3 mm (Min.)
C	6.35 mm (Min.)
D	6.35 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the top edge.

2) Inserting in Shorter-edge First

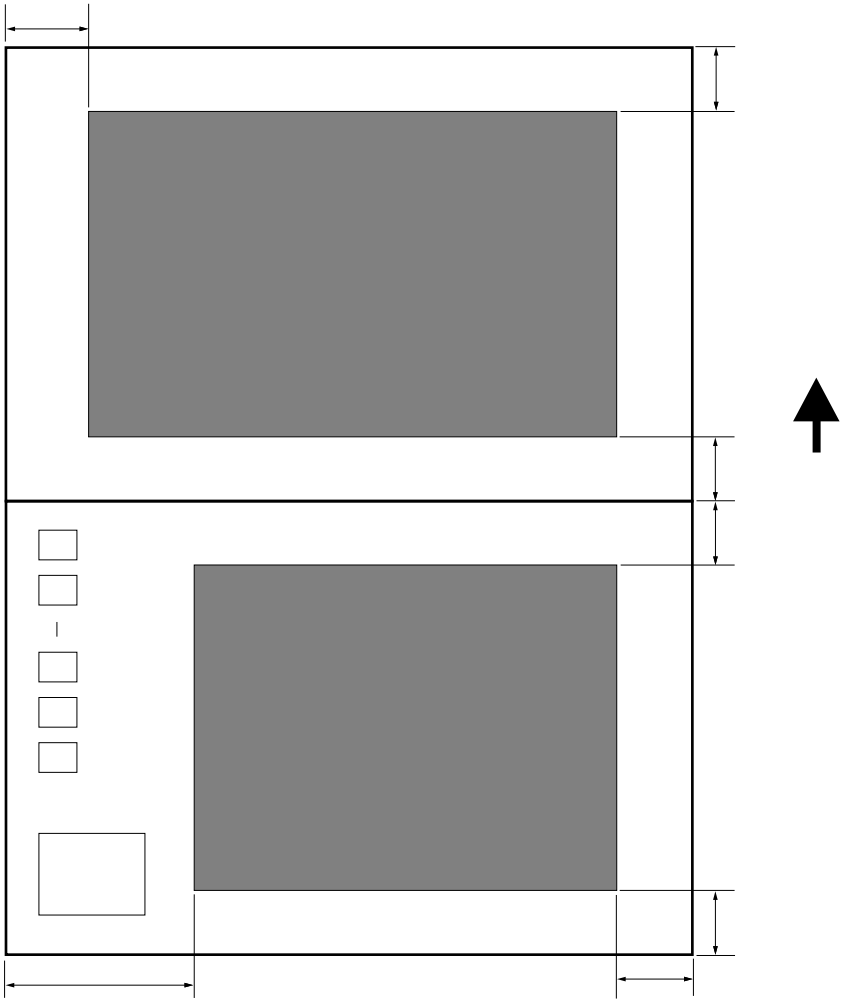


SYMBOL	SIZE
A (NOTE)	30 mm (Min.)
B	11.3 mm (Min.)
C	6.35 mm (Min.)
D	6.35 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the top edge.

(2) Reply Card

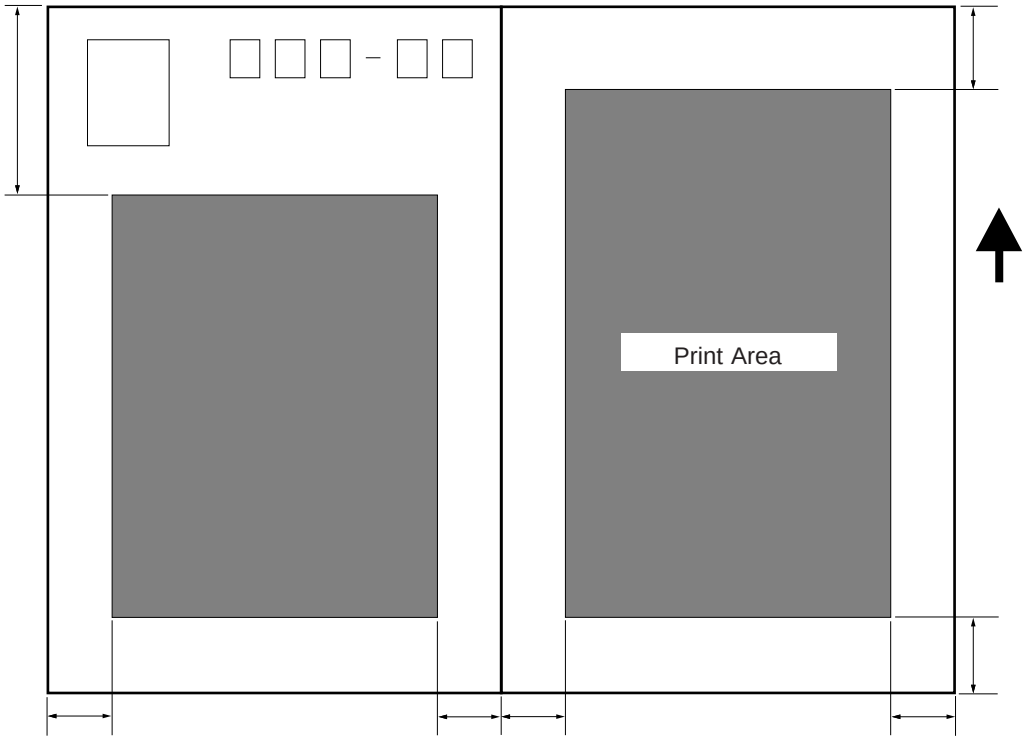
1) Inserting in Longer-edge First



SYMBOL	SIZE
A (NOTE)	30 mm (Min.)
B	11.3 mm (Min.)
C	6.35 mm (Min.)
D	6.35 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the top edge.

2) Inserting in Shorter-edge First

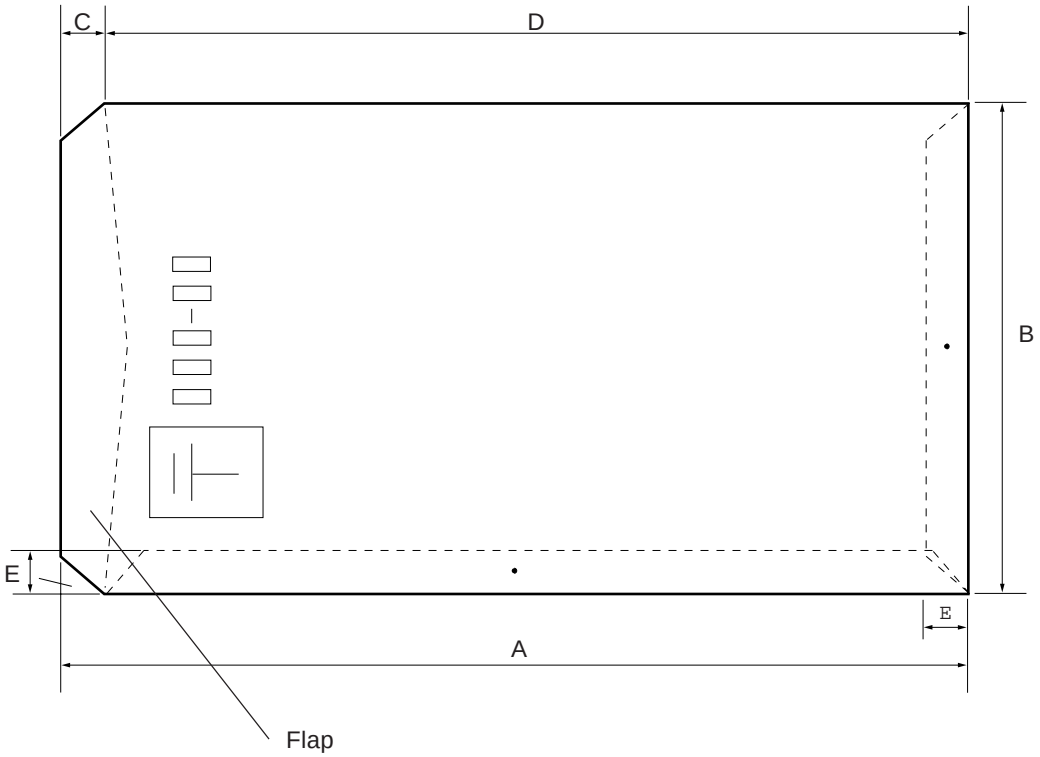


SYMBOL	SIZE
A (NOTE)	30 mm (Min.)
B	11.3 mm (Min.)
C	6.35 mm (Min.)
D	6.35 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the top edge.

5. Envelope (printable using manual feed)

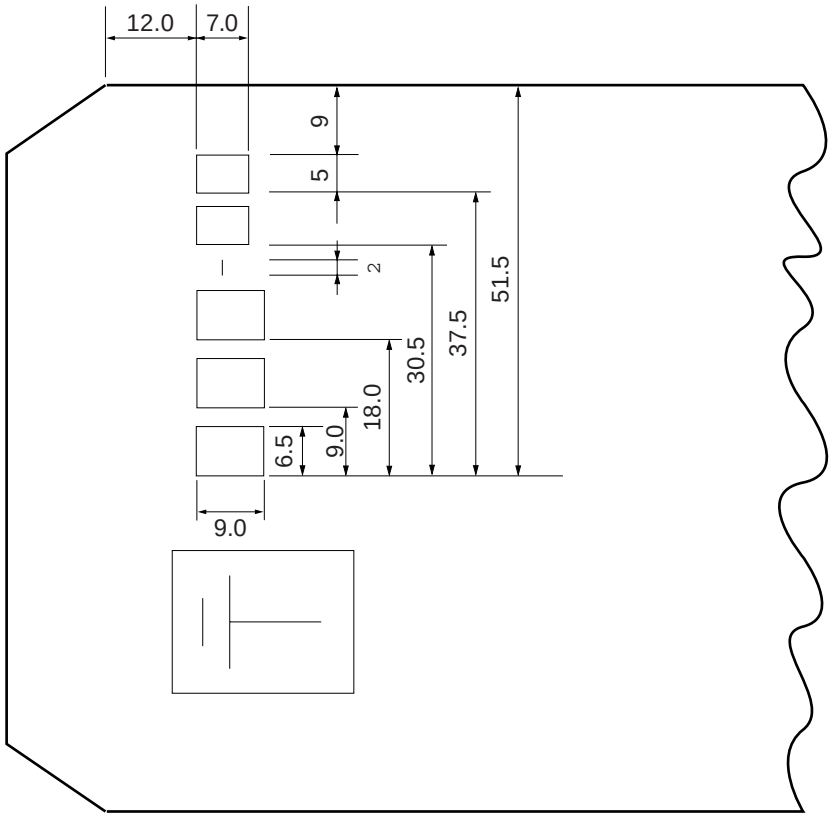
5.1. Size



TYPE	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	Inserting Direction
Portrait No.4	220 - 230	90	15 - 25	205	5 - 20	Shorter-edge
Portrait No.3	250 - 260	120	15 - 25	235	5 - 20	Shorter-edge
Landscape No.3 (3036 only)	297 - 309	216	15 - 32	277	5 - 20	Longer-edge
Landscape No.2 (3036 only)	347 - 364	240	15 - 32	332	5 - 20	Longer-edge

NOTES)
1. Do not use envelopes with cut-out windows.
2. Use envelopes of Kraft paper or higher quality.
3. Use envelopes with a flap standard edge (straight flap edge line).
4. When envelopes are glued on the flap portion, be sure that the glue is completely dry and does not stick to fingers when touched.
   Do not use envelopes with peel-off cover paper attached to the glued portion.
5. Do not print on the flap or glued portion, or within 6.35 mm of the glued part.
6. Use envelopes with no folds, wrinkles, tears, etc. If curled, remove it by bending in the opposite direction.

5.2. Boxes for Postal Zip Code Entry



5.3. Types of Envelopes and Paper Weight

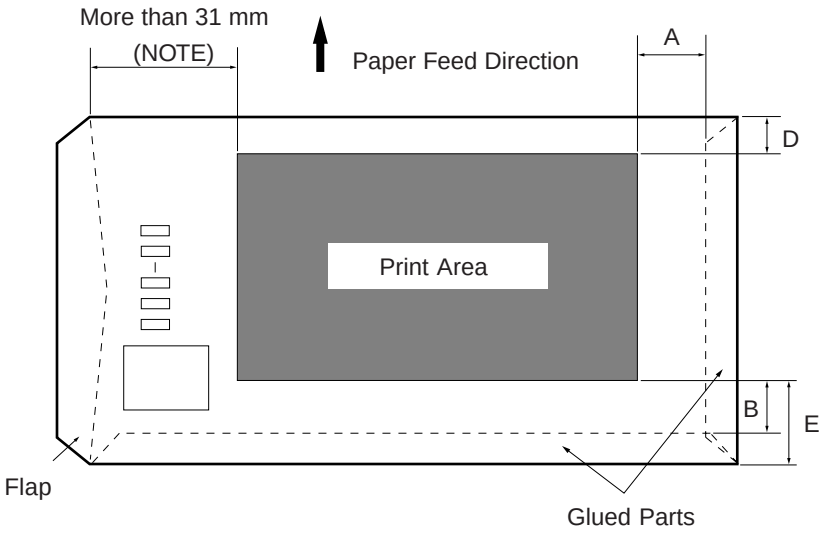
TYPE	INSERTING DIRECTION	REAM (Kg)
Portrait No. 4	Shorter-edge First	43 to 73
Portrait No. 3	Shorter-edge First	43 to 73
Landscape No. 3 (3036 only)	Longer-edge First	60 to 73
Landscape No. 2 (3036 only)	Longer-edge First	60 to 103

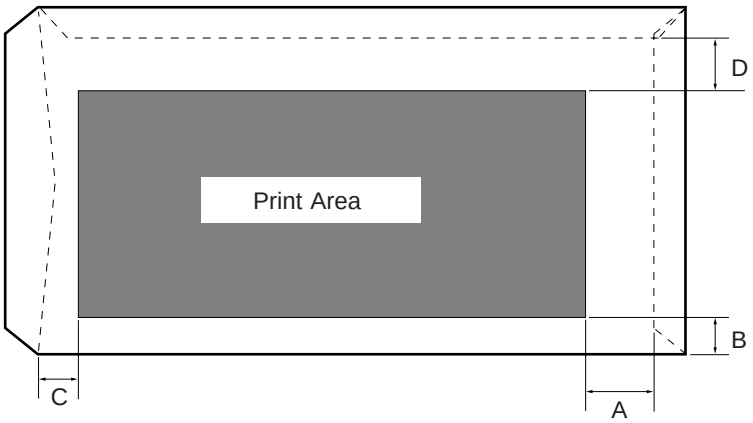
NOTE: Only the four types of envelopes listed above can be used.

5.4. Printable Range

(when printing is performed using the print head Pin No. 1)

(1) Portrait No.4, Portrait No.3:

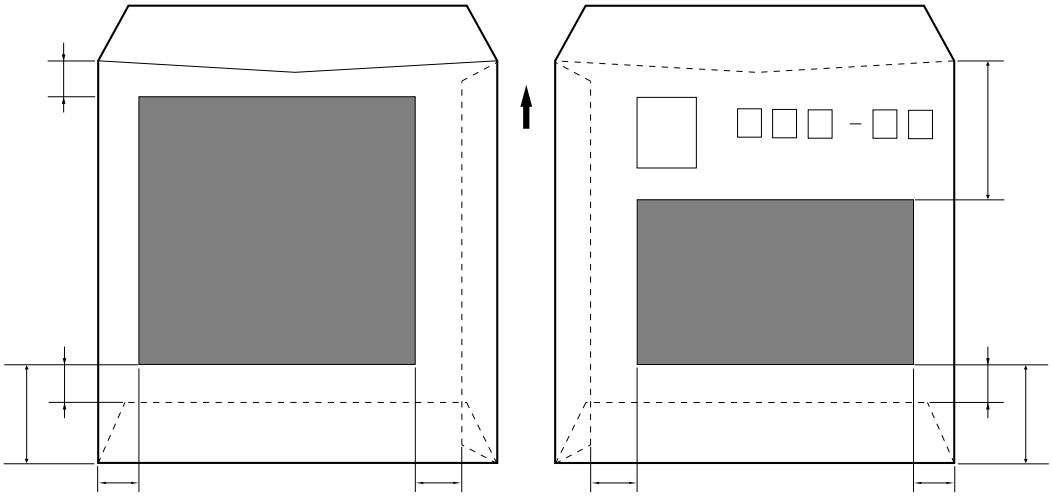




SYMBOL	SIZE
A	20.32 mm (Min.)
B	6.35 mm (Min.)
C	12.7 mm (Min.)
D	6.35 mm (Min.)
E	11.3 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the flap-fold line.

(2) Landscape No. 3, Landscape No. 2:



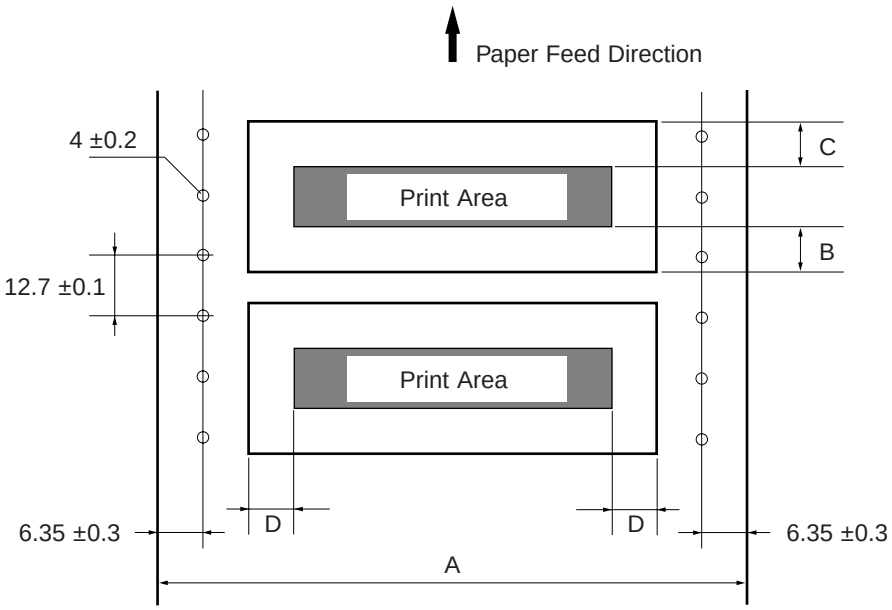
SYMBOL	SIZE
A	20.32 mm (Min.)
B	6.35 mm (Min.)
C	12.7 mm (Min.)
D	6.35 mm (Min.)
E	11.3 mm (Min.)

NOTE) This is the space for stamps, labels, memos, etc. which is printable up to 6.35 mm from the flap-fold line.

6. Label Paper (in Fanfold Paper Mode)

6.1. Printable Range and Size

(when printing is performed using the print head Pin No. 1)

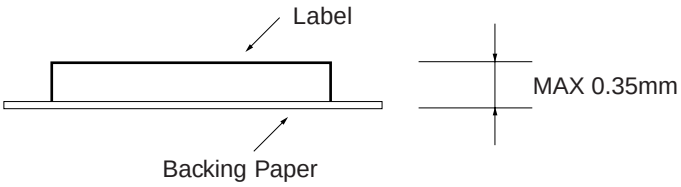


SYMBOL	SIZE
A	3 to 16 in. (3036)
	3 to 10 in. (3036N)
B	6.35 mm (Min.)
C	6.35 mm (Min.)
D	6.35 mm (Min.)

6.2. Weight of Backing Paper

Use label paper of ream 55 to 70 Kg or its equivalent.

6.3. Paper Thickness

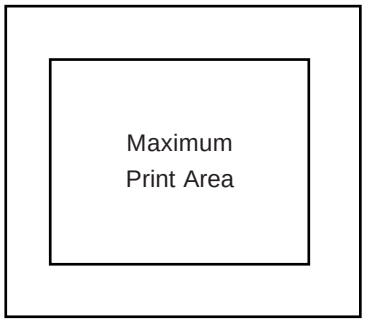


NOTE) On a single paper of backing paper, all the labels should be of the same thickness.

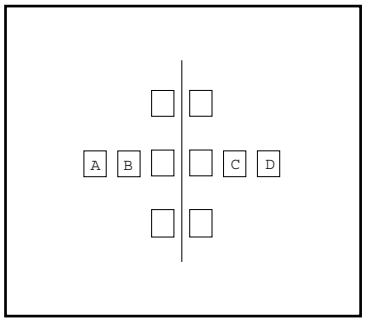
7. Preprinting

7.1. Remarks on Preprinting

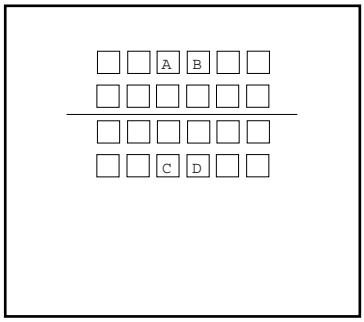
For preprinting, do not lay out preprint data almost touching the printable range border. (Refer to Fanfold Form Feed Paper, page 7-2; Cut Sheet Paper, page 7-8, page 7-10, page 7-12; Postcard, page 7-17, page 7-18; Reply card, page 7-19, page 7-20; Envelope, page 7-24, page 7-25; Label Paper, page 7-26.)



For preprinting a vertical ruled line, provide a 1 character minimum space on left and right to the line.
: Space as much as 1 character



For preprinting horizontal ruled lines, provide a 1 character minimum space above and below the line.
: Space as much as 1 character



Appendix A. SPECIFICATIONS

1. Operating Environment Conditions

Temperature	for operation:	10°C to 40°C	
	for storage:	-10°C to 60°C	
Humidity	for operation:	20% to 80%(No condensation)	
	for storage:	15% to 80%(No Condensation)	
Wet Globe Temperature:		26.7°C or less	
Noise:	Normal Mode	for 3036/36N	About 55 dB (A)
		for 3031/31N	About 58 dB (A)
	Quiet Mode	for 3031	About 55 dB (A)
		for 3031N	About 57 dB (A)

2. Electric Specifications

Input Power:	120V±10% or 220 / 240V±10%
Frequency:	47 Hz to 63 Hz
Power Consumed	at stand-by: 15 VA
	Max/: 120 VA
Calorie:	Max. 103 kcal / hour

3. Physical Specifications

3031, 3036 models

Size:	646 mm (width) x 272 mm (depth) x 206 mm (height)
Weight:	About 11 Kg

3031N, 3036N models

Size:	506 mm (width) x 272 mm (depth) x 206 mm (height)
Weight:	About 9 Kg

4. Printing Specifications

Print Method	Wire Dot Matrix		
Print Head	3036/36N	Number of Wires:	24
		Wire Diameter:	0.22 mm
	3031/31N	Number of Wires:	9
		Wire Diameter:	0.30 mm
Number of Copies	3036/36N	Original + 3	
	3031/31N	Original + 5	
Paper Types	Cut Sheet Paper / Postcard:		
		Manual Insertion, ASF (option)	
	Continuous Paper:	1st Tractor, 2nd Tractor (option)	
	Multi-sheet Paper:	Manual Insertion, Continuous Paper, ASF (option)	
	Label Paper:	Manual Insertion, Continuous Paper	
Paper Size	Min. 76.2 mm (3 in.)		
Paper Thickness	Max. 0.35 mm (0.014 in.)		
Print Direction	Bi-directional Printing		
	(Single-direction Printing is also possible.)		
Print Speed	Fast Draft (10 cpi)	3036/36N:	336 cps
		3031/31N:	360 cps
	Draft (10 cpi)	3036/36N:	250 cps
		3031/31N:	270 cps
	Letter Quality	3036/36N:	75 cps
	Nearly Letter Quality	3031/31N:	68 cps
Emulation	ESC/P, PPDS		
Character Pitch	ANK: 10, 12, 15, 17.1, 20, 24 (Only for 3036/36N), PS cpi		
Max. Print Width	3031, 3036: 203 mm (8 in.) to 345.4 mm (13.6 in.)		
	3031N, 3036N: 203 mm (8 in.)		
Ink-ribbon Life	About 4 million characters (at ANK Draft-speed Print)		
Interface	Conforming to IEEE 1284 Bi-directional Parallel Interface		

5. Protective Function during Print Head Warm-up

When printing is performed continuously over a long period, the print head heats up, which may be a cause of trouble. To protect the print head when it becomes too hot, this printer stops the print head between lines or prints only in one direction until the print head cools down.

Printing operations are suspended until the print head cools down.

Once the print head has cooled down to a certain temperature, normal printing is restored.

Appendix B. Diagnostic Functions

This printer has 6 built-in diagnostic functions.

- Initial Diagnostic Function
- Operating Diagnostic Function
- Error Display
- Print Test Function
- Buzzer
- Trace Function

1. Initial Diagnostic Function

This function is activated when the printer is in a Reset status. (when a Reset signal is received from the System Unit at power-ON, etc) The following tests are performed to determine if there are any errors with the printer.

- Memory Test
- CPU Test
- Non-volatile Memory Test
- Operation Panel Test
- Printer Mechanical Test

If any error is found during these tests, the error is indicated by a flickering of the lamps on the Operation Panel. As for the meaning of each error indication, refer to Section 3: Error Indication, page B-2 in this chapter.

2. Operating Diagnostic Function

While the Printer Power Switch is ON (at the "|" position), this function checks items not included in the Initial Diagnostic Function above:

- Print Head Position Check
- Non-volatile Memory Check
  (only at writing to and reading from the non-volatile memory)
- Paper Absence
- Print Density Check
- Interrupt Check
- Head Error

When these checks are performed and an error is found, the error is indicated by the flickering of the lamps on the Operation Panel. As for the meaning of each error indication, refer to Section 3: Error Indication, page B-2 in this chapter.

3. Error Indication

Error Name	Ready	Paper Out	Alt	Lock	User1	User2
Memory Error		Blinks			Blinks	
Non-volatile Memory Error		Blinks		Blinks		
Home Position Error		Blinks		Blinks		Blinks
CG Error		Blinks		Blinks	Blinks	
Operation Panel Error		Blinks		Blinks	Blinks	Blinks
Option Tractor Error		Blinks	Blinks		Blinks	Blinks
Print Head Drive Error		Blinks	Blinks	Blinks		
Print Head Thermal Error		Blinks	Blinks	Blinks		Blinks
Control Card Error	Blinks	Blinks	Indefinite			

4. Print Test Function

This function is used to check that printing is operating normally.
To execute the print test, turn the Power Switch ON ("|") while holding down the [Line Feed] key. While the print test is executed, keys will operate normally just as in the normal printable status. For further details, refer to Chapter 1, Section 8; Print Test, page 1-13.

5. Buzzer

The buzzer is generated by commands from the System Unit. It informs the operator of an error occurrence, etc. as listed below.

- Printer Error
- Paper Absence
- BEL (bell) Code Receiving

6. Trace Function

This function is used to convert all data sent from the System Unit and applications to the printer into ASCII codes and to print them.
To execute this function, select Initial Setting, Item 6: Trace Mode. For further details, refer to Chapter 4, Section 6: Trace Mode, page 4-21.

Appendix C. Printer Control Commands

1. PPDS COMMAND LIST

Printer Control Commands

Command	Control Code		Function
	Hex.	Dec.	
NUL	00	00	Null
BEL	07	7	Bell
DC1	11	17	Select Printer
DC3	13	19	Deselect Printer
CAN	18	24	Cancel Data
ESC Q n	1B 51 n	27 81 n	Deselect Printer
ESC U n	1B 55 n	27 85 n	Set Print Direction

Horizontal Position Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
CR	0D	13	Carriage Return
BS	08	8	Back Space
HT	09	9	Horizontal Tab
ESC D	1B 44	27 68	Set Horizontal Tabs
ESC R	1B 52	27 82	Set Default Tab Racks
ESC X n m	1B 58 n m	27 88 n m	Set Horizontal Margins
ESC d n n	1B 64 n n	27 100 n n	Relative Move Inline Forward

Vertical Position Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
LF	0A	10	Line Feed
VT	0B	11	Vertical Tab
FF	0C	12	Form Feed
ESC 4	1B 34	27 52	Set Top of Form
ESC 5 n	1B 35 n	27 53 n	Automatic Line Feed
ESC J n	1B 4A n	27 74 n	Relative Move Base Line
ESC J n	1B 4A n	27 74 n	AGM:Relative Move Base Line

Line Pitch Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC 0	1B 30	27 48	Set 1/8 Inch Line Pitch
ESC 2	1B 32	27 50	Invoke Text Line Pitch
ESC 3 n	1B 33 n	27 51 n	Set Graphics Line Pitch
ESC 3 n	1B 33 n	27 51 n	AGM: Set n/180 Inch Line Pitch
ESC A n	1B 41 n	27 65 n	Set Text Line Pitch
ESC A n	1B 41 n	27 65 n	AGM: Set n/60 Inch Line Pitch
ESC [\ ...	1B 5B 5C ..	27 91 92 ...	Set Vertical Units

Character Set Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC 6	1B 36	27 54	Select PC Character Set 2
ESC 7	1B 37	27 55	Select PC Character Set 1
ESC =	1B 3D	27 61	Download Character Start
ESC \ n m	1B 5C n m	27 92 n m	Print All Characters
ESC ^	1B 5E	27 94	Print Single Character

Character Pitch Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
SI	0F	15	Start 17CPI Printing
SO	0E	14	Begin Double-Wide Printing by Line
DC2	12	18	Select 10 CPI
DC4	14	20	End Double-Wide Printing by Line
ESC :	1B 3A	27 58	Select 12 CPI
ESC I n	1B 49 n	27 73 n	Select Font and Pitch
ESC P n	1B 50 n	27 80 n	Proportional Space Mode

Character Ornament Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC - n	1B 2D n	27 45 n	Auto Underscore
ESC E	1B 45	27 69	Begin Emphasized Print
ESC F	1B 46	27 70	End Emphasized Print
ESC G	1B 47	27 71	Begin Double Strike Print
ESC H	1B 48	27 72	End Double Strike Print
ESC S n	1B 53 n	27 83 n	Begin Subscript / Superscript Mode
ESC T	1B 54	27 84	End Subscript / Superscript Mode
ESC W n	1B 57 n	27 87 n	Double Wide Continuous Mode
ESC [@ ...	1B 5B 40 ...	27 91 64 ..	Select Print Type Style
ESC _ n	1B 5F n	27 95 n	Continuous Overscore Mode

Bit Image Graphics Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC * ...	1B 2A ...	27 42 ...	AGM: Multiple Density Bit Image Graphics
ESC K ...	1B 4B ...	27 75 ...	Normal Density Bit Image Graphics
ESC L ...	1B 4C ...	27 76 ...	Dual Density Bit Image Graphics
ESC Y ...	1B 59 ...	27 89 ...	Dual Density Bit Image Graphics with Consecutive Horizontal Dot Elimination
ESC Z ...	1B 5A ...	27 90 ...	High Density Bit Image Graphics with Consecutive Horizontal Dot Elimination
ESC [g ...	1B 5B 67 ...	27 91 103 ..	Multiple Density Bit Image Graphics

Printable Area Setting Commands

Command	Control	Cord	Function
	Hex.	Dec.	
ESC B ...	1B 42 ...	27 66 ...	Set Vertical Tabs
ESC C n m	1B 43 n m	27 67 n m	Set Page Length
ESC N n	1B 4E n	27 78 n	Set Skip Perforation
ESC O	1B 4F	27 79	Reset Skip Perforation

2. ESC/P COMMAND LIST

Printer Control Commands

Command	Control Code		Function
	Hex.	Dec.	
BEL	07	7	Buzzer
DC1	11	17	Device Control 1 [Select State]
DC3	13	19	Device Control 3 [Deselect State]
CAN	18	24	Cancel Data
ESC U n	1B 55 n	27 85 n	Unidirectional Printing On/Off
ESC @	1B 40	27 64	Initialize Printer
ESC EM n	1B 19 n	27 25 n	Auto Sheet Feeder Control
ESC <	1B 3C	27 60	Select Unidirectional [one line]
DEL	7F	127	Delete a Character
ESC 8	1B 38	27 56	Disable Paper-Out Detection
ESC 9	1B 39	27 57	Enable Paper-Out Detection

Horizontal Position Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
BS	08	8	Backspace
HT	09	9	Horizontal Tabulation
ESC D	1B 44	27 68	Set Horizontal Tabs
ESC $ n m	1B 24 n m	27 36 n m	Set Absolute Print Position
CR	0D	13	Carriage Return
ESC l n	1B 6C n	27 108 n	Set Left Margin
ESC Q n	1B 51 n	27 81 n	Set Right Margin

Vertical Position Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
LF	0A	10	Line Feed
VT	0B	11	Vertical Tabulation
FF	0C	12	Form Feed
ESC J n	1B 4A n	27 74 n	Performs Incremental Line Feed
ESC B ...	1B 42 ...	27 66 ...	Set Vertical Tabs
ESC b n	1B 62 n	27 98 n	Set Vertical Tabs in Channels
ESC / n	1B 2F n	27 47 n	Select VFU Channel

Line Pitch Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC 0	1B 30	27 48	Select 1/8" line spacing
ESC 2	1B 32	27 50	Select 1/6" line spacing
ESC 3 n	1B 33 n	27 51 n	Select n/180" line spacing
ESC + n	1B 2B n	27 43 n	Select n/360" line spacing
ESC A n	1B 41 n	27 65 n	Set n/60" text line spacing

Character Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC R n	1B 52 n	27 82 n	Select International Character Set
ESC kn	1B 6B n	27 107 n	Select TypeStyle Family
ESC t n	1B 74 n	27 116 n	Select Character Table
ESC x n	1B 78 n	27 120 n	Select Letter Quality or Draft Mode
ESC % n	1B 25 n	27 37 n	Select Resident or Download
ESC q n	1B 71 n	27 113 n	Typestyle Selection

Character Pitch Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC P	1B 50	27 80	Select 10 CPI
ESC M	1B 4D	27 77	Select 12 CPI
ESC g	1B 67	27 103	Select 15 CPI
ESC p n	1B 70 n	27 112 n	Turn Proportional Mode On/Off

Character Ornament Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
SO	0E	14	Select Double-Wide Mode
SI	0F	15	Select Condensed Mode
DC2	12	18	Cancels Condensed Mode
DC4	14	20	Cancel Double-Wide Mode
ESC & 0 ..	1B 26 00 ..	27 38 0 ..	Define User-Defined Characters
ESC S n	1B 53 n	27 83 n	Select Superscript/Subscript Mode
ESC T	1B 54	27 84	Cancel Superscript/Subscript Mode
ESC w n	1B 77 n	27 119 n	Turn Double High Mode On/Off
ESC E	1B 45	27 69	Select Emphasized Mode
ESC F	1B 46	27 70	Cancel Emphasized Mode
ESC G	1B 47	27 71	Select Double-Strike Mode
ESC H	1B 48	27 72	Cancel Double-Strike Mode
ESC (- ...	1B 28 2D ...	27 40 45 ..	Select Line/Score
ESC - n	1B 2D n	27 32 n	Turn Underline Mode On/Off
ESC 4	1B 34	27 52	Select Italic Mode
ESC 5	1B 35	27 53	Cancel Italic Mode
ESC ! n	1B 21 n	27 33 n	Master Select
ESC SP n	1B 20 n	27 32 n	Set Intercharacter Space

Bit Image Graphics Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC *...	1B 2A ...	27 42 ...	Select Bit Image
ESC K ...	1B 4B ...	27 75 ...	Select Single-Density Graphics Mode
ESC L ...	1B 4C ...	27 76 ...	Select Double-Density Graphics Mode
ESC Y ...	1B 59 ...	27 89 ...	Select High-Speed Double-Density Graphics Mode
ESC Z ...	1B 5A ...	27 90 ...	Select High-Speed Quadruple-Density Graphics Mode
ESC ? ...	1B 3F ...	27 63 ...	Bit Image Transformation

Printable Area Setting Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC C n	1B 43 n	27 67 n	Set Page Length in Lines
ESC C 0 n	1B 43 00 n	27 67 0 n	Set Page Length in Inches
ESC N n	1B 4E n	27 78 n	Skip Over Perforation
ESC O	1B 4F	27 79	Cancel Skip Over Perforation

Others Commands

Command	Control Code		Function
	Hex.	Dec.	
ESC #	1B 23	27 35	Cancel MSB Control
ESC =	1B 3D	27 61	Set MSB to 0
ESC >	1B 3E	27 62	Set MSB to 1
ESC :	1B 3A 00 ..	27 58 0 ..	Copy ROM to RAM